

MOUNTAIN BIKES

Mountain-bicycles – EN 14766

STEVENS USER MANUAL

PLEASE OBSERVE THE FOLLOWING INSTRUCTIONS:

Read pages 7 and 8 before your first ride

Have the bike card signed by your dealer

Observe the notes on warranty and maintenance from page 74 on

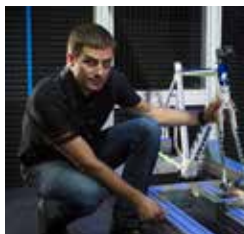


Editor

STEVENS Vertriebs GmbH

Asbrookdamm 35
D-22115 Hamburg
Phone: +49 (0)40-716070-0
Fax: +49 (0)40-465314
info@stevensbikes.de
www.stevensbikes.de

The author



At Zedler – Institut für Fahrradtechnik und -Sicherheit GmbH everybody is focused on bicycles.

As a publicly appointed and sworn bicycle expert managing director Dirk Zedler elaborates expert's reports for courts, insurance companies, companies and private customers. In Germany's specialist magazine TOUR, Europe's biggest road bike magazine he publishes test reports and reports for technicians.

In addition, the mechanical engineer advises manufacturers on technical matters relating to security and supports them in development and research. On the basis of the maxim "Not only in theory, but also in practice" Dirk Zedler uses his bicycle or the train for nearly all ways. In his spare leisure time you see him regularly on his mountain bikes or road racing machines.

Zedler – Institut für Fahrradtechnik und -Sicherheit GmbH
Phone: +49 (0) 7141-29 99 27-0 • Fax: +49 (0) 7141-29 99 27-30
info@zedler.de • www.zedler.de

Imprint

Edition 14, 2014

Editor: STEVENS Vertriebs GmbH

© Text, concept, photos and graphic design: Zedler – Institut für Fahrradtechnik und -Sicherheit GmbH

Technical details in the text and illustrations of these operating instructions are subject to change.

Liability of the editor, the editorial team and other third parties for contributions in this booklet and resulting damage whatsoever shall be excluded, unless in the event of gross negligence. No part of this publication may be reprinted, translated, copied or transmitted in any form or by any means, electronic, mechanical, by hand or otherwise for another business purpose without prior written permission of the author and the editor.

Table of Contents

Component Description	4
1. General Safety Instructions	5
1.1. Before Your First Ride	7
1.2. Before Every Ride	8
2. Legal Requirements for Riding on Public Roads	9
3. Adjusting the Bicycle to the Rider	11
3.1. Adjusting the Saddle Height	11
3.2. Adjusting the Height of the Handlebars.....	13
3.2.1. Conventional Stems	13
3.2.2. Stems for Threadless Systems, the Aheadset®-System	14
3.3. Correcting the Fore-to-Aft Position and Tilt of the Saddle.....	16
3.3.1. Adjusting Saddle Position and Tilt	16
3.4. Adjusting the Brake Lever Reach	17
3.5. Adjusting the Tilt of the Handlebars, Bar Ends and Brake Levers.....	17
4. The Pedal Systems	19
4.1. Different Systems at a Glance – How They Work	19
4.2. Adjustment and Maintenance	20
5. The Brake System.....	21
5.1. Functioning and Wear	21
5.2. Rim Brakes (General)	22
5.2.1. Checking, Readjusting and Synchronizing V-Brakes	22
5.2.2. Functional Check.....	22
5.2.3. Vertical Adjustment of the Brake Pads.....	23
5.2.4. Synchronizing and Readjusting the Brakes.....	23
5.3. Checking and Readjusting Hydraulic Rim Brakes	24
5.4. Hydraulic Disc Brakes (General)	25
5.4.1. Checking and Readjusting Hydraulic Disc Brakes.....	26
5.5. Back-Pedal Brakes	26

6. The Gears.....	27
6.1. Derailleur Gears	27
6.1.1. Functioning and Operation	27
6.1.1.1. Push-Button Shifters.....	28
6.1.1.2. Twist Grip Shifters.....	29
6.1.2. Checking and Readjusting the Gears	30
6.1.2.1. Rear Derailleur	31
6.1.2.2. Adjusting the Limit Stops	31
6.1.2.3. Front Derailleur.....	32
6.2. Multi-Speed Hubs	33
6.2.1. Functioning and Operation	33
6.2.2. Readjusting.....	33
6.2.3. Checking the Chain Tension	34
6.2.3.1. Readjusting the Chain Tension on Bicycles with Adjustable Drop-Outs	34
6.3. Chain Maintenance	35
6.3.1. Chain Wear.....	35
7. The Wheels	36
7.1. Tyres, Tubes, Rim Tapes, Valves, Inflation Pressure.....	36
7.2. Rim Trueness, Spoke Tension.....	38
7.3. Wheel Fastening with Axle-Nuts, Quick-Releases or Thru Axles.....	38
7.3.1. Wheel Fastening with Axle-Nuts	38
7.3.2. Wheel Fastening with Quick-Releases	38
7.3.2.1. How to Securely Fasten the Wheel with Quick-Releases.....	39
7.3.3. Wheel Fastening with Thru Axles	40
7.4. Repairing Punctures	42
7.4.1. Wheel Removal.....	42
7.4.2. Removing Clincher and Folding Tyres	44
7.4.3. Mounting Clincher and Folding Tyres	45
7.4.4. Removing Tubeless Tyres	47
7.4.5. Mounting Tubeless Tyres.....	47
7.4.6. Mounting Wheels	48

8.	The Headset.....	49
8.1.	Checking the Bearing Play.....	49
8.2.	Adjusting Conventional Headsets.....	49
8.3.	Adjusting the Threadless Headset: Aheadset® Headsets.....	50
9.	Special Characteristics of Carbon and Framesets.....	51
9.1.	Care Instructions	51
9.2.	Aluminium and Carbon Framesets.....	52
9.3.	Carbon Handlebars	54
9.3.1.	Mounting Carbon Handlebars.....	54
9.4.	Carbon Seat Posts	56
9.4.1.	Mounting the Seat Post	57
10.	Suspension Forks	58
10.1.	Functioning.....	58
10.2.	Adjusting Suspension Forks.....	58
10.3.	Adjusting the Suspension Travel of Suspension Forks	60
10.4.	Maintenance	60
11.	Full Suspension of the Mountain Bike Models.....	61
11.1.	What to Bear in Mind When Adjusting the Saddle	61
11.2.	Adjusting to the Rider and the Riding Style	61
11.2.1.	Adjusting the Spring Rate	62
11.3.	How to Block the Rear Shock	64
11.4.	Maintenance	65
12.	Things Worth Knowing about Bicycles and Cycling.....	66
12.1.	Helmets	66
12.2.	Transporting Luggage.....	66
12.3.	Accessories	67
12.4.	Bicycle Transport by Car	67
12.5.	Bicycle Transport in a Bicycle Case or in a Sturdy Bicycle Carton	68
12.6.	Taking Children with You	71

13.	Kids' Bicycles	72
14.	Warranty and Guarantee for STEVENS Bicycles.....	74
14.1.	Warranty.....	74
14.2.	A Note on Wear	74
14.3.	Warranty Rules of STEVENS Vertriebs GmbH	75
14.3.1.	Special Notes, Notes on Safety.....	76
15.	General Notes on Care and Servicing	77
15.1.	Cleaning and Caring for the Bicycle	77
15.2.	Safekeeping and Storing the Bicycle	77
16.	Service and Maintenance Schedule	78
17.	Recommended Torque Settings	80
17.1.	Recommended Torque Settings for Disc Brakes and Hydraulic Rim Brakes.....	82
17.2.	Maximum Torque Settings of Standard Bolts	83
18.	Service Schedule	84
	Bike Card	86
	Handover Report.....	87
	Imprint.....	1

Frame

- 1 Top tube
- 2 Down tube
- 3 Seat tube
- 4 Rear stay
- 5 Chainstay
- 6 Head tube

Suspension fork

- I Fork crown
- II Stanchion tube
- III Lower leg
- IV Drop-out

Wheel

- Valve
- Hub
- Tyre
- Rim
- Spoke
- Quick-release

Other components:

- Saddle
- Rear shock/damper
- Stem
- Handlebars
- Brake lever
- Shift lever
- Headset
- Seat post
- Rear frame with rear shock
- Brake
- Cassette sprockets
- Rear derailleur
- Chain
- Front derailleur
- Crankset
- Brake
- Rotor

Dear Customer,

In purchasing this STEVENS bicycle you have chosen a product of high quality and technology. Each component of your new bicycle has been designed, manufactured and assembled with great care and expertise. Your STEVENS dealer gave the bicycle its final assembly and adjustment to guarantee proper operation and many enjoyable riding experiences with complete peace of mind from the very first metres.

This manual contains a wealth of information on the proper use of your bicycle, its maintenance and operation as well as interesting information on bicycle design and engineering.

Please read this brochure thoroughly; you will find it worth your while; even if you have cycled all your life and feel like a veteran with your new bike. Bicycle technology has developed at a rapid pace during recent years.

Therefore, before setting off on your new bicycle, be sure to read at least the chapter **"Before Your First Ride"**.

To have as much fun as possible during cycling, be sure to carry out the minimum functional check described in chapter **"Before Every Ride"** before setting off.

When doing any maintenance and repair work, be aware that the detailed instructions provided in your manual only refer to this bicycle. The information included here is not applicable to any other bicycle. Due to numerous designs and model changes, it may be that some of the routines are not described in every detail. Be sure to also observe the instructions of the component suppliers on the STEVENS CD-ROM that you have received from your STEVENS dealer.

Be aware that these instructions may require further explanation, depending on the experience and/or skills of the person doing the work. For some jobs you may require additional (special) tools or supplementary instructions.

Before you set off, let us point out a few things that are very important to every cyclist: Always ride carefully on public roads so as not to endanger yourself or others. Always observe the traffic rules and make sure not to meet the discontent of other road users. Please respect nature when riding off-road. Only use your bicycle on signposted, well maintained and hard-surface trails. Observe the legal regulations concerning off-road cycling. These regulations may differ in each country. Never ride without a properly adjusted helmet and without glasses and take care to always wear suitable clothing. As a minimum you should wear straight cut trousers and shoes with a stiff sole and grip. Have a lot of fun with your new STEVENS bicycle!



Caution:

For your own safety, never do any work unless you feel absolutely sure about it. If you are in doubt, ask your STEVENS dealer for help!



1. General Safety Instructions

First we would like to familiarise you with the various components used on your bicycle.

Please unfold the cover of this manual. Here you will find the illustration of a bicycle showing all the essential components. Leave the page unfolded as you read. This means that you can quickly find in the text the component that is being referred to.

The picture shows an arbitrary bicycle – this is not what every bicycle will look like. Today's bicycles come in various types that are designed for specific uses and fitted accordingly. This user manual includes the following bicycle types.

- Kids' bicycles
- Mountain bikes (MTB)
- Tandem bicycles



1.1. Before Your First Ride

- a. STEVENS bicycle types are designed for a maximum overall weight including rider, luggage and bicycle.

Kids' bicycles: 65 kg

Mountain bikes: 115 kg

Tandem bicycles: 210 kg

The following weight limits for the rider including equipment and STEVENS bicycle apply to special wheels:

Mavic Crossmax SLR Disc: 85 kg

DT Swiss M1700 Spline: 110 kg

- b. Due to their design and fittings **mountain bikes** are not suitable for being used on public roads. If you intend to use this type of bicycle on public roads, it must be fitted with the devices and equipment prescribed for this purpose (see chapter "Legal Requirements for Riding on Public Roads"). Mountain bikes are designed for off-road use; they are however not suitable for downhill (DH), freeride, dual slalom, downhill/freeride parks, jumps, drops etc. or for use in water.

- c. **Tandems** are designed to be used by 1 or 2 riders. They can be used e.g. for off-road cycling on gravel field and forest tracks, however, not for rough terrain. They are not suitable for mountain bike use, namely for all mountain enduro, downhill (DH), freeride, dual slalom, downhill/freeride parks, jumps, drops etc. Due to their design and fittings tandem bicycles are not suitable for being used on public roads. If you intend to use this type of bicycle on public roads, it must be fitted with the devices and equipment prescribed for this purpose (see chapter "Legal Requirements for Riding on Public Roads").

- d. Are you familiar with the brake system? Have a look at the bike card and check whether the brake lever of the front brake is on the side you are used to (right or left). If it is not, you will need to train to get used to the new configuration, as inadvertent use of the front brake

can throw you off your bike. Or ask your STEVENS dealer to change the brake levers. Your new bicycle is equipped with modern brakes which may be far more effective than those you were used to so far. Be sure to first practise using the brakes off public roads! For more information see chapter "The Brake System".

- e. Are you familiar with the type and functioning of the gears? If not, make yourself familiar with the new gears in a place clear of traffic. For more information see chapter "The Gears".

- f. Are both saddle and handlebars properly adjusted? The saddle should be set to a height from which you can just reach the pedal in its lowest position with your heel. Check whether your toes reach to the floor when you are sitting on the saddle. Your STEVENS dealer will be pleased to help you, if you are not happy with your seating position. For more information see chapter "Adjusting the Bicycle to the Rider".

- g. If your bicycle is equipped with clipless or step-in pedals: Have you ever tried the shoes they go with? Do not set off until you have practised engaging and disengaging the shoes from the pedals in stationary. For more information see chapter "The Pedal Systems". In addition, read the operating instructions of the pedals that you have received from your STEVENS dealer.

- h. If you have bought a bicycle with suspension fork, you should ask your STEVENS dealer to have it properly adjusted before delivery. Improperly adjusted suspension components are liable to malfunction or damage. In any case they will impair the performance of your bicycle as well as your safety whilst riding. For more information see chapters "Suspension Forks", "Full Suspension of the Mountain Bike Models".



Danger:

Trailers are not permitted for STEVENS kids' and full suspension bicycles.



Danger:

STEVENS kids' bicycles are not designed for mounting stabilisers.



Danger:

Note that the distance you need to stop your bike increases, while riding with the hands on the bar ends. The brake levers are not within easy reach.



Danger:

A lack of practice when using step-in pedals or too much spring tension in the mechanism can lead to a very firm connection, from which you cannot quickly step out!



Danger:

Improperly closed quick-releases or thru axles can cause components of your bicycle to come loose and result in serious accidents!



Danger:

During use your bicycle is undergoing stress resulting from the surface of the road and through the rider's action. Due to these dynamic loads, the different parts of your bicycle react with wear and fatigue. Please check your bicycle regularly for wear marks as well as for scratches, dents, bent parts and incipient cracking. Components which have reached the end of their service life may break without previous warning. Let your STEVENS dealer maintain and service your bicycle regularly and in cases of doubt it is always best to replace components.

1.2. Before Every Ride

Check the following points before you set off:

- a. Are the quick-release levers, thru axles or the bolted connections of the front and rear wheel, the seat post and other components properly closed and tightened? For more information on how to use quick-releases see chapters "Wheel Fastening with Quick-Releases" and "Wheel Fastening with Thru Axles".



- b. Are the tyres in good condition and do they have sufficient pressure? Do a thumb test. For more information see chapter "The Wheels".
- c. Spin the wheels to check whether the rims are true. Watch the gap between rim and brake pad or, in the case of disc brakes, between frame and rim or tyre. Untrue rims can be an indication of tyres with ruptured sides or broken axles or spokes. For more information see chapter "The Wheels".



Danger:

Do not use your bicycle, if it fails on one these points! If you are in doubt, ask your STEVENS dealer for help. Riding a defective bicycle can result in serious accidents!



Note:

Do not forget to take a high quality D- or chain lock with you on your ride. The only way to effectively protect your bicycle against theft is to lock it to an immovable object.

- d. Test the brakes while standing by firmly pulling brake levers towards the handlebars. The brake pads of rim brakes must hit the rim with their entire surface. They must not touch the tyres. With disc brakes the wheels must be fully blocked when pulling the brake lever in stationary with little manual force. You should not be able to pull the brake lever of disc or rim brakes all the way to the handlebars! For more information see chapter "The Brake System".
- e. If you want to ride on public roads, make sure your bicycle is equipped according to the regulations of your country. Riding without lights and reflectors in dark or dim conditions is very dangerous because you will be seen too late or not at all by other road users. Turn on the lights as soon as dusk sets in. For more information see chapter "Legal Requirements for Riding on Public Roads".
- f. Let your bicycle bounce on the ground from a small height. If there is any rattling, see where it comes from. Check the bearings and bolts, if necessary.
- g. If your bicycle has suspension, check it as follows: Press down on your bicycle and see whether the spring elements retract and extend as usual.
- h. If your bicycle has a kick-stand, make sure it is fully raised before you set off. Risk of falling!
- i. Various parts of your new bicycle, such as the chain drive, always need to be well lubricated. Make sure not to dirt your clothes and protect your trousers with a trouser clip whenever you set off on your bicycle.

2. Legal Requirements for Riding on Public Roads

If you want to use your STEVENS bicycle for riding on public roads, it has to be equipped according to the regulations of the respective country.

Pay particular attention to your STEVENS bicycle being equipped with the required set of lights and reflectors.

Ask your bicycle dealer to inform you about the regulations in force in the country where you use your STEVENS bicycle. Make yourself familiar with the road traffic regulations for riding on public roads and off-road.



Danger:

For your own safety, be sure to switch on the light as soon as dusk sets in.



Danger:

Keep the lighting set clean and check its functioning at regular intervals.



Note:

When riding on public roads cyclists must in general observe the same regulations as car drivers. Make yourself familiar with the road traffic regulations of your country.



Note:

If you want to use your bicycle for riding on public roads, it has to be equipped according to the regulations of the respective country. Ask your STEVENS dealer for the laws and regulations applicable in your country or in the country you intend to use the STEVENS bicycle.

Legal Requirements



3. Adjusting the Bicycle to the Rider

Your body height and proportions are decisive for the frame size of your bicycle. Make particularly sure there is enough space between your crotch and the top tube so that you do not hurt yourself, if you have to get off your bicycle quickly.

By choosing a specific type of bike you already roughly determine the posture you will be riding in. However, some components of your bicycle are designed in a way that you can adjust them to your proportions up to a certain degree. These include the seat post, the handlebars, the stem and the brake levers.

After any assembly work, be sure to make a short functional check as described in chapter “Before Every Ride” and do a test ride in an area free of traffic. This will allow you to safely check whether everything is in good order.

If you are unsure about how to do something, it will be better just to check your seating position. Ask a specialist if you want something changed. They will see to your wishes the next time you leave your bicycle at the workshop, e.g. for the first inspection.

3.1. Adjusting the Saddle Height

The saddle should be set to a height which gives maximum pedalling comfort and efficiency. When pedalling, the ball of your big toe should be positioned above the centre of the pedal spindle. With your feet in this position you should not be able to stretch your legs completely straight at the lowest point. If the saddle is too high, you will have trouble passing through the lowest point and your pedalling will become awkward. You can check the height of your saddle in the following, simple way. To do so be sure to wear flat-soled shoes, or even better cycling shoes.

- Sit on the saddle and put one of your heels on the pedal at its lowest point. In this position your leg should be fully stretched. Make sure your hips remain horizontal.
- To adjust the saddle height loosen the binder bolt or quick-release lever (inform yourself beforehand on how to use quick-releases in chapter “Wheel Fastening with Axle-Nuts, Quick-Releases or Thru Axles”). Use a suitable tool to release the seat post binder bolt by turning it anticlockwise.

Rule of thumb to determine the suitable saddle height (SH):

$$SH = \text{Inseam (length of inside leg, barefoot)} \times 0.885$$

The saddle height is the distance from the centre of the bottom bracket to the upper edge of the saddle.



Danger:

Never grease a carbon seat post or the seat tube of a carbon frame. This would reduce the friction and render any clamping with acceptable clamping forces impossible. Use special carbon assembly paste to increase the clamping force.



Danger: All the tasks described require experience, appropriate tools and manual skills. Make it a rule to tighten the bolted connections carefully by using a torque wrench. Increase the torque values bit by bit, checking the fit of the component in between. Do not exceed the maximum torque values! You will find the values in chapter “Recommended Torque Settings” and in the operating instructions of the component manufacturers on the enclosed STEVENS CD-ROM.



Danger:

If you have a very small frame, there may be the danger of your foot colliding with the front wheel. Therefore, make sure your cleats are properly adjusted.

Adjusting the Bicycle to the Rider



- Now you can adjust the saddle height to the desired position. Be sure not to pull out the seat post too far. The mark on the seat post (MIN, MAX, STOP, END etc.) should always remain within the seat tube. In the case of frames with long seat tubes which continue beyond the top tube, the seat post should at least reach below the height of the top tube or the rear stay! This can mean a minimum insertion length of 100 millimetres (4.5 in.) or more.

Make sure the part of the seat post inside the seat tube is always well greased. Exception: frames and seat posts made of carbon fibre reinforced plastic; in this case the seat post must be mounted without grease. Use special carbon assembly paste.

If the seat post does not move easily inside the seat tube, ask your STEVENS dealer for advice. Do not use brute force.



Danger:

Never ride your bicycle with the seat post drawn out beyond the limit, maximum, or stop mark! In case of non-observance the seat post might break or cause severe damage to the frame. Setting the stem to a lower position can only add to your safety!



Note:

With children who are still growing it is advisable to check the seating position every two to three months.



- Align the saddle with the frame by using the saddle nose and the bottom bracket or top tube as a reference point.

- Clamp the seat post again by turning the seat post binder bolt clockwise. You do not need much strength in your hands to clamp the seat post sufficiently tight. Otherwise the seat post does not match the frame.
- Check the tight clamping of the seat post by taking hold of the saddle at both ends and then trying to rotate the seat post inside the seat tube. If it does not move, the seat post is firmly seated.



- Does the leg stretch test now produce the right result? Check by moving your foot and pedal to the lowest point. When the ball of your foot is exactly above the pedal centre in the ideal pedalling position, your knee should be slightly bent. If it is, you have adjusted the saddle height correctly.
- Check whether you can balance safely on your bike while sitting on the saddle by stretching your feet to the floor. If not, you should lower the saddle a little.

3.2. Adjusting the Height of the Handlebars

The height of the handlebars determines the inclination of the upper body. The deeper the handlebars, the more inclined the upper body. This means a more streamlined position for the rider and more weight to bear on the front wheel, but the extremely inclined position proves less comfortable, as the strain on wrists, arms, upper body and neck will increase.

In the case of a threadless system, also referred to as Aheadset®-system, the stem is part of the headset system. With this system finding the correct position is more difficult, as the stem has to be dismantled and remounted.

Handlebars with conventional stems allow limited vertical adjustment. This is done by moving the stem up or down inside the fork steerer tube.

Adjusting the height of handlebars with adjustable stems is relatively easy.

3.2.1. Conventional Stems

- Release the expander bolt by two to three complete turns. The stem should now turn freely inside the fork.
- If it does not, release the clamping bolt by tapping it gently with a hammer. With Allen bolts, you need to stick the Allen key into the bolt heads first, as they are normally countersunk and therefore impossible to be hit directly. Tap in this case the tool gently with the hammer.



- Now you can move the handlebar/stem unit up and down as a whole. Be sure not to pull out the stem too far. The mark on the seat post (MIN, MAX, STOP, END etc.) should always remain within the seat tube. Setting the stem to a lower position can only add to your safety.
- Realign the handlebars with the front wheel.



Danger:

The stem is one of the load bearing parts of your bicycle. Changes to it can impair your safety. If you are not sure, ask your STEVENS dealer for advice.



Caution:

Never try to unscrew the top race of the headset when you only want to adjust the stem as you will otherwise alter the bearing play.

- Retighten the expander bolt with a torque wrench. Please observe the maximum torque value:
- Make sure the stem is firmly fixed by taking the front wheel between your legs and trying to turn the handlebars and stem relative to the wheel. If there is movement, you have to increase the torque value.
- If the handlebars are still too high or too low, you will have to replace the stem. This can be quite a big job, as it may be that you have to take off all the fittings on the handlebars. Inform yourself at your bicycle dealer about the various stem types available.



Danger:

Note that the bolted connections of stem and handlebars have to be tightened to the specified tightening torques. You will find the respective values in chapter “Recommended Torque Settings” or directly on the components. If you disregard the prescribed values, the handlebars or stem may come loose or break. This can lead to a severe crash.



Danger:

Never ride a bicycle with a stem that has been drawn out beyond the mark for the maximum permissible height! Check all bolts and test your brakes before you set off!



Danger: Do not combine a steel stem with aluminium handlebars, unless this combination is expressly approved by the manufacturers.



3.2.2. Stems for Threadless Systems, the Aheadset®-System

(Aheadset® is a registered trademark of Dia-Compe which developed the system.)

In the case of bicycles with a threadless headset system (Aheadset®) the stem also serves to adjust the bearing preload. If you change the position of the stem, you have to readjust the bearing play (see chapter “The Headset”). The vertical setting range is limited by the intermediate rings, also referred to as spacers. With flip-flop stem models it is also possible to mount the stem the other way round to alter the handlebar height.

- Release the bolt at the top of the fork steerer tube which serves to adjust the initial bearing pressure and remove the Ahead cap.
- Release the stem clamping bolts on either side of the stem and pull the stem off the fork. In doing so keep hold of both frame and fork to prevent the fork from slipping off the head tube!



- Now you can remove the spacers.
- Slide the removed spacers except from the lowest, tapered spacer above the stem on the steerer tube.



- If you want to turn the stem around, you have to also release the bolts of the faceplate securing the handlebars. If the stem is fitted with a faceplate, you can simply remove the handlebars. (See also chapter "Adjusting the Tilt of the Handlebars, Bar Ends and Brake Levers" further below). Position the handlebars centrally and retighten the bolts after you have turned the stem around.

- Readjust the headset and retighten the stem after you have aligned it (see also chapter "The Headset"). Check whether the handlebars are firmly seated in the stem by trying to rotate the handlebars downwards. Also check whether the handlebars/stem unit can be turned relative to the fork. Do this by taking the front wheel between your knees and trying to twist the handlebars. If the parts can still be moved, the bolts must be carefully tightened once again and the tight fit must be checked once again. Do not exceed the maximum torque values.



Danger: In case you turn the stem around, the cables may be too short. In this case riding on your bicycle is dangerous. Ask your STEVENS dealer for advice.



Danger: Stems come in very different lengths and shaft and binder tube diameters. A stem of inappropriate dimensions can become a serious source of danger: Handlebars and stem may break, causing an accident in the process. Make sure the stem clamp (the handlebar clamping) and the steerer tube clamping are free of sharp edges. Your STEVENS dealer will be pleased to help you.



Note: Spacers can only be removed by shortening the steerer tube at the same time. This shortening is irreversible. Have this shortening only done by your STEVENS dealer when you are absolutely sure about the position.



Note:

Make sure the handlebar clamping area is free of sharp edges. Your STEVENS dealer will be pleased to help you.



Danger:

Note that the bolted connections of the stem and the handlebars have to be tightened to specified torques. You will find the respective values in the operating instructions on the STEVENS CD-ROM or directly on the components. Otherwise the handlebars or stem may come loose or break.



3.3. Correcting the Fore-to-Aft Position and Tilt of the Saddle

The inclination of your upper body, and hence your riding comfort and pedalling power, are partially influenced by the distance between the grips of the handlebars and the saddle as well as by the tilt of the saddle. This distance can be altered slightly by changing the position of the saddle rails in the seat post clamp. However, this also influences your pedalling. Depending on whether the saddle is positioned more to the front or more rearwards, your legs will reach the pedals to a greater or lesser extent from behind.

You need to have the saddle horizontal in order to pedal in a relaxed manner. If it is tilted, you will constantly have to lean against the handlebars to prevent yourself from slipping off the saddle.

An inappropriate saddle position or unsuitable saddle models may numb your crotch and cause blood flow disorders in your genital area. Ask your STEVENS dealer for advice.

3.3.1. Adjusting Saddle Position and Tilt

- With patent seat posts a single bolt or two parallel bolts fix the clamping mechanism, which controls both the tilt and the horizontal position of the saddle. Some seat posts have two bolts which allow a still more precise adjustment of the angle position.



Danger:

Note that the bolted connections of the seat post have to be tightened to the specified torque values. You will find the values in chapter "Recommended Torque Settings" and in the operating instructions on the STEVENS CD-ROM or on the components.

- Release the bolt(s) at the top of the seat post. Turn the bolt anticlockwise no more than two to three turns to begin with, otherwise the whole assembly can come apart.



- Move the saddle forward or backward by sliding its rails in the loosened seat post clamp. You may have to give it a light blow to move it.
- Make sure the seat of the saddle remains horizontal as you retighten the bolt. The bike should stand on level ground while you adjust the saddle.
- Tighten the bolts with a torque wrench.
- After fastening the saddle check whether it resists tilting by bringing your weight to bear on it once with your hands on the tip and once at the rear end.



Note:

The setting range of the saddle is very small; replacing the stem allows you to make far bigger adjustments to the rider's fore-to-aft position, as stems come in different lengths. Replacing the stem allows you to make far larger changes to the fore-to-aft position, because stems come in lengths differing by more than ten centimetres. In most of the cases the length of the cables must be adjusted. For these changes ask your STEVENS dealer for help!

3.4. Adjusting the Brake Lever Reach

With most brake systems the distance between the brake levers and the handlebar grips is adjustable. This gives riders with small hands the convenience of being able to bring the brake levers closer to the handlebar. The length of the rider's fingers also determines how the lever position for first brake contact should be set.

- Check the point, when the brake pads touch the braking surfaces (rim, disc). If this point is reached after the lever has only travelled a short distance, you have to readjust the brakes after having adjusted the brake lever reach. (See chapter "The Brake System") Otherwise the brake would drag already after the adjustment. If this point is, however, reached after the lever has travelled half of its way, there is a little play to reduce the gripping distance of the levers.
- On most bikes there is a small threaded pin near the point where the brake cable or hydraulic brake line runs into the brake lever mount. Turn it clockwise and watch how the lever adjusts as you do so.
- When you have set the levers to the desired gripping distance, be sure to check whether there is still enough slack for the brake levers to move a little before the brake pads hit the rims.



3.5. Adjusting the Tilt of the Handlebars, Bar Ends and Brake Levers

Bar ends on mountain bikes are usually fitted slightly angled. Adjust the handlebars so that you can rest your hands on it with your wrists relaxed and not turned outward too far.



- Release the Allen bolt(s) at the bottom or front side of the stem.
- Turn the handlebars to the desired position.
- Make sure the handlebars are accurately centred in the stem.
- In the case of stems with two or four bolts make sure the upper and bottom slots are identical in width.



Danger:

Make sure you cannot pull the brake levers all the way to the handlebars. Your maximum braking force must be reached short of this point!



- In the case of stems with four-bolt clamping, be sure to retighten the bolts evenly and alternately to the prescribed torque value. The clamping slots in the top and bottom area as well as on the right and on the left must be evenly and of identical width.



Bar ends give you additional ways of gripping the handlebar. They are usually fixed in a position that gives the rider a comfortable grip when pedalling out of the saddle. The bar ends are then almost parallel to the ground or tilted slightly upwards.



- Carefully retighten the clamping bolt(s). Try to turn the handlebars relative to the stem. Retighten the bolted connections, if necessary. Observe the maximum torque value (see also chapter "Recommended Torque Settings").
- After adjusting the handlebars you need to adjust the brake and shift levers.
- Release the Allen bolts at either grip binder.
- Turn the levers relative to the handlebars. Sit in the saddle and place your fingers on the brake levers. Check whether the back of your hand forms a straight line with your lower arm.
- Retighten the levers and check whether they resist twisting and turning! In doing so observe the specified torque values in chapter "Recommended Torque Settings".

- Release the bolts, which are usually located on the underside of the bar ends, by one to two complete turns.
- Turn the bar ends to the desired position and make sure the angle is the same on both sides.
- Retighten the bolts to the required torque.
- Check the firm seat of the bar ends by trying to twist them out of position.



Danger:

Note that the bolted connections of stem, handlebars, bar ends and brakes have to be tightened to their specified torques. You will find the respective values in chapter "Recommended Torque Settings". If you disregard the prescribed values, the components may come loose or break. This can lead to a severe crash.

4. The Pedal Systems

Not all shoes are suited for cycling. Shoes used for cycling should have a stiff sole and provide a firm support for your feet. If the soles are too soft, the pedals can press through and cause foot pain. The force transmission is less efficient. The sole should be not too broad near the heels, as the rear stays will otherwise get in the way of your pedalling. This will prevent your feet from assuming a natural position and may cause knee pain in the long run.



4.1. Different Systems at a Glance – How They Work

We recommend pedals that provide a lock and release mechanism for your shoe, known as step-in pedals. The firm connection between shoe and pedal prevents your feet from slipping off when pedalling fast or when riding over rough ground. Besides this, it enables you not only to push but also to pull the pedals, which makes your pedalling more fluent. A further advantage is that the ball of your big toe comes to rest biomechanically just at the right place on the pedal spindle and that you do not block unintentionally the front wheel with the tips of your feet during steering.

Step-in pedals come with a special type of cycling shoe which locks onto the pedal similarly to a ski binding.



To engage with the pedal is to turn it to the horizontal using the tip of the cleat (the plate on the sole of the shoe) and then rest your foot on it. Most mountain bikes are equipped with a double-sided lock-in mechanism, so that you can step on the pedal with either face up. The shoe engages with the pedal with a click which you will hear and feel clearly. With all commercially available systems the shoe is disengaged from the pedal by twisting the heel outward. Lean against a wall or ask someone to hold you when you try to engage and disengage the shoe from the pedal. Functional differences between the pedal systems concern the shape of the cleat, the release angle and the rigidity of the connection. Cyclists predisposed to knee trouble should choose a pedal system that has some "float", so that the heel can move sideways a little while the shoe is engaged with the pedal. Some step-in pedals have cleats embedded into the sole which is a great advantage, as it ensures stable walking.

An older system is the strap pedal system. With this kind of pedal the shoe tip is held by a bracket. A strap running over the bridge of the foot fixes the shoe.



Danger:

Taking up the pedals, engaging the shoes and disengaging them by turning the heel outward should first be practised while stationary. Later you can refine your technique in a place clear of traffic.



Note:

Read the operating instructions of the pedal and shoe manufacturers carefully. In case of inquiries, ask your STEVENS dealer for advice.



4.2. Adjustment and Maintenance

Current pedal systems can show considerable differences in design. Nevertheless, there are some general rules for adjustment which apply to all of them:

- The cleat has to be fastened to the shoe in such a position that the ball of the foot comes to rest on the pedal axle.



- Your feet should assume a natural position when pedalling. For most people this means that the heels will point inward a little. Make sure the fastening bolts are properly tightened, as you will find it almost impossible to disengage your shoe from a loose plate!
- Adjust the required releasing force according to your needs. It is advisable to adopt a low releasing force setting to begin with. Turn the small Allen bolt and examine the change in releasing force when you engage and disengage the shoe from the pedal.
- Exposed springs and other components that attract dirt have to be cleaned and regreased regularly.

- Squeaking or creaking cleats can often be silenced by applying a little grease to the point of contact between cleat and pedal. These noises may also be signs of wear.
- Check the cleats regularly for wear, especially in case of plastic cleats.
- If your shoe wobbles on the pedal, the cleat or the sole of your shoes might be worn.



Danger:

Only use clipless pedals allowing you to engage and disengage smoothly. A defective pedal or a badly worn cleat can make the shoe disengage from the pedal. Risk of falling!



Note:

Before mounting the pedals, check the marking on the pedal axles first. "R" stands for right pedal and "L" for left pedal. Note that the left pedal has a left-handed thread that has to be tightened contrary to the direction you are accustomed to, i.e. anticlockwise.

5. The Brake System

In general the brakes of your bicycle are necessary to adjust your speed to the traffic situation. However, in an emergency the brakes must be able to bring your bicycle to a halt as quickly as possible. Such emergency braking is also a study in physics. In the process of braking, the rider's weight shifts forward, thus reducing the load on the rear wheel. The rate of deceleration is primarily limited by the danger of overturning and only in the second place by the road grip of the tyres. Such a problem becomes particularly acute when riding downhill. In the event of an emergency braking you have to try to put your weight back as far as possible.



Actuate both brakes simultaneously and bear in mind that due to the weight transfer the front brakes can achieve a higher braking force.

With **rim brakes** long lasting braking or permanent dragging of the brake pads can overheat the rim. This can affect the inner tube negatively or cause the tyre to slip on the inner rim. Sudden loss of pressure while cycling can result in a serious accident.

With **disc brakes** prolonged braking or permanent dragging of brake pads can overheat the brake system. This can result in a loss of braking force, even to the point of total brake failure, provoking serious accidents.

Therefore, check your riding manners and make it a habit to brake hard and then to open the brake again, whenever the road surface and the situation allows it. It is better to stop for a moment and let the rim cool down rather than to risk anything.

5.1. Functioning and Wear

Actuating the hand lever on the handlebar or back-pedalling causes a stationary brake pad to be pressed against a rotating braking surface, and the resulting friction slows down the wheel. The rate of deceleration is not only determined by the force with which the brake pad is pressed against the braking surface, but also to a decisive degree by the coefficient of friction, which depends on the two materials that are rubbed against each other.

When water, dirt or oil gets in contact with one of the engaging surfaces, this changes the coefficient of friction. This is why brakes respond at a slight delay and less powerfully in wet weather. This applies in particular to rim brakes.

In order to maintain their effectiveness brakes need to be checked and readjusted from time to time.



Danger:

Be careful while getting used to the brakes. Practise emergency stops in a place clear of traffic until you are comfortable controlling your bicycle. This can save you from having accidents.



Danger:

The assignment of brake lever to brake pad, e.g. left lever acts on front brake, can vary. Make yourself familiar with the lever-to-brake assignment or ask your STEVENS dealer to change the brakes as you want them.



Danger:

Actuate the brakes carefully when riding on wet or slippery roads or off-road, as the tyres can easily slip away. Therefore, reduce your speed in general when riding in such conditions.



Danger:

Wet weather, snow and ice reduce your braking effect. Be aware of longer stopping distances when riding in the rain!



Danger:

Damaged brake cables that are for example frayed should be replaced immediately, as they can otherwise fail in a critical moment, possibly causing a crash.



Note:

Clean the brake pads at regular intervals.

5.2. Rim Brakes (General)

The friction generated by braking causes wear to the brake pads as well as to the rims. Frequent rides in the rain and soiling hasten wear on both engaging surfaces. Once the abrasion of the rim has reached a certain critical point, the rim may break under the tyre pressure. This can make the wheel jam or the inner tube burst, both of which can cause a fall!

See your STEVENS dealer and ask them to examine the remaining thickness of the rims when you have worn through your second set of brake pads at the latest. Your bicycle dealer has special measuring devices for determining the remaining thickness of the rims.

Some rims are provided with wear indicators. Once the abrasion of the rim has reached a certain critical point, the brake indicator becomes visible in form of small slots or a permanent strip or disappears (according to the model). In this case you should also go and see your STEVENS dealer at once and have your rim replaced.

5.2.1. Checking, Readjusting and Synchronizing V-Brakes

Common V-brake designs have two brake arms mounted separately on either side of the rim. Actuating the brake lever creates a pull on the brake cable which draws the arms towards each other. On this occasion the brake arms turn slightly inwards around the suspension point, a friction of the brake pads being generated on the rim sides.

5.2.2. Functional Check

- Check whether the brake pads are accurately aligned with the rims and still sufficiently thick. You can tell this by the grooves in the brake pads. If the pads are worn down, it is time to replace them.



- Furthermore, the brake pads should touch the rim with their front part first. At the moment of the first contact the rear part of the brake pad should be a millimetre away from the rim. Seen from the top the brake pads form a "V" with the trough pointing to the front. This V-shaped setting prevents screeching when the brakes are applied.
- When you pull the brake lever, both brake arms must contact the rim simultaneously.
- The brake lever must always remain clear of the handlebars. You should not be able to pull it all the way to the handlebars, even in the event of an emergency braking.
- Only a successful passing of all these points will ensure a correctly adjusted brake.



Danger:

When replacing brake pads, be sure to only use marked brake pads matching your rim. Your STEVENS dealer will be pleased to help you. Ensure that braking surfaces are absolutely free of wax, grease and oil. Ask an expert to check the rims at the latest when you are through your second set of brake pads or when the wear indicators are visible. Worn down rims may make the inner tube burst and result in a fall! Ask your STEVENS dealer for help.

5.2.3. Vertical Adjustment of the Brake Pads

- Release the fastening bolt of the brake pad by one to at most two complete turns.
- Push the brake pad to the correct height, i.e. the brake pad must hit the rim with its entire surface. Make sure the brake pad is in parallel to the rim and pull the brake lever to fix the brake pads. Retighten the fastening bolt of the brake pad to the recommended torque value.



- To readjust the brakes, release the knurled lock ring located at the point where the brake cable enters the brake lever on the handlebars.
- Unscrew the knurled, slotted adjusting bolt by a few turns. This shortens the free travel of the brake lever.
- Keeping the adjusting bolt fixed, tighten the lock ring against the brake lever mount. This prevents the adjusting bolt from coming loose by itself.



- Ensure that the slot of the bolt faces neither forward nor upward, as this would permit water or dirt to enter.



Danger:

Adjusting the position of the brake pads relative to the rims requires a considerable degree of skill. Replacing and adjusting the brake pads is a job best left to your STEVENS dealer.



Danger:

Always test the brakes' function when stationary after adjusting them, making sure the brake pads engage fully with the rim when you pull them hard.

5.2.4. Synchronizing and Readjusting the Brakes

- For synchronizing the brake, almost all cantilever and V-brakes have a bolt on the side of one brake body to adjust the spring preload. Screw this bolt until the clearance between brake pad and rim is the same on either side.

5.3. Checking and Readjusting Hydraulic Rim Brakes

Hydraulic brakes are extremely powerful and require very little maintenance.



Danger:

Manufacturers of hydraulic brakes deliver their products with detailed operating instructions. You find these instructions on the STEVENS CD-ROM. Read them carefully before removing the wheel or doing any maintenance work. Misuse can lead to brake failure or accidents!



Danger:

Loose connections and leaky brake lines drastically impair braking effect. If you find leaks in the brake system or buckled lines, contact your STEVENS dealer. Risk of accident!



Check the pads regularly for wear and alignment. Indicators, i.e. usually grooves in the pads, tell you whether the brake pads are worn down or not. If the pads are worn down to the bottom of the grooves, it is time to replace them.

Keep the brake callipers, especially the brake pad area, clean, as dirt can prevent the pads from travelling back in their rest position. Regularly check the lines and connections for leaks.



With hydraulic rim brakes, as well, the brake pads wear down and the lever travel increases. Most brake models are, however, fitted with a bolt or a small knob (TPA, Turbo Pad Adjuster, for tool less brake pad wear for Magura HS33) at the control unit, brake lever to compensate the wear.

5.4. Hydraulic Disc Brakes (General)

The most striking feature of hydraulic disc brakes is that they combine outstanding braking effect with good weather resistance. They respond a lot faster in wet conditions than rim brakes do and achieve their normal high braking power within a very short time. They also require fairly little maintenance and do not wear down the rims as rim brakes do.



One drawback of disc brakes is that they tend to be noisy.

The brake levers can be adjusted to the size of your hands, too, allowing you to operate them with optimal effectiveness.

In most cases this is done by means of a small Allen bolt located directly at the hand lever. Please note that you may need to readjust the brake pads, as well. Be sure to also read the operating instructions of the brake manufacturer on the STEVENS CD-ROM.



Danger: Keep oil or cleaning agent off the brake pads. If this should happen despite all precautions, you have to replace the brake pads, as soiled brake pads will no longer be operative any more.



Danger: Disc brakes get hot in use. For this reason do not touch the brakes directly after stopping, especially after a long downhill ride.



Caution: Manufacturers of hydraulic disc brakes deliver their products with detailed operating instructions. You find these instructions on the STEVENS CD-ROM. Be sure to read these operating instructions carefully before you dismount a wheel or do any maintenance work.



Note:

New brake pads have to be bedded in before they reach their optimal braking performance. For this purpose, accelerate the bicycle 30 to 50 times to around 30 kph (18 mph) and bring it to a halt each time by braking forcefully. This procedure is finished, when the force required at the lever for braking has stopped decreasing.



Note:

Under different conditions, e.g. in wet conditions, disc brakes tend to be noisy. These noises are normal and have technical reasons. As long as the operativeness of the brake is not impaired there is no reason for concern.



Danger:

When you state a changed pressure point when braking forcefully or when you have to pump with the lever repeatedly to achieve a braking effect, stop cycling and contact your STEVENS dealer.



Danger:

Loose connections and leaky brake lines drastically impair braking effect. If you find leaks in the brake system or buckled lines, contact your STEVENS dealer. Risk of accident!



Danger:

Disc brakes can only be mounted on bicycles with a solid disc brake mount. Do not use an adapter for mounting.

5.4.1. Checking and Readjusting Hydraulic Disc Brakes

Check the lines and connections regularly for leaks while pulling on the lever. If hydraulic oil or brake fluid leaks out, you should see your STEVENS dealer immediately, as a leak can render your brakes ineffective.

Make sure you have always a clearly defined pressure point when pulling the brake lever. If this is not the case, stop cycling and see your STEVENS dealer immediately. Hydraulic disc brakes have a fully automated brake pad wear adjuster. It ensures that the brake lever travel does not change with the wear of the brake pads and there is therefore no need to re-adjust the brake. Check the thickness of the brake pads regularly. The overall thickness of Magura pads should not be less than 2.5 mm.

Check the pads for wear by inspecting the thickness of the braking material attached to the backing plate within the brake calliper or view through the window on the upper side of the calliper. If there is approximately 1mm of material left on each brake pad, remove the pads according to the manufacturer's operating instructions on the STEVENS CD-ROM and check them thoroughly.

With a thickness of 0.5 mm (measured without holder) the brake pads have to be replaced at the latest.



Danger:

Do not open the brake lines. Leaking out brake fluid is very unhealthy and aggressive to the coating.



Danger:

Check regularly whether the brake torque arm is firmly attached to the frame or fork.

For more information on the respective brake system see:
www.magura.de
www.shimano-europe.com or
www.paul-lange.com
www.sram.com/avid
www.tekro.com

5.5. Back-Pedal Brakes

This type of brake is hardly found any more and only still common on city and kids' bicycles. The brake mechanism of this brake is fully enclosed and mostly combined with a multi-speed hub.

This back-pedal brake is operated by pedalling backward. For maximum braking force, step on one of the pedals in its rearmost position with the cranks horizontal. With Sram models braking force is increased when you have switched to a lower gear beforehand.

With back-pedal brakes the chain tension has to be checked regularly. The amount of play, midway between chainring and sprocket, should not be more than two centimetres.



6. The Gears

The gears on your bicycle serve to adjust your pedalling power to the terrain you are riding on and the desired speed. The gears do not reduce the physical work to be performed which remains the same with the identical distance to be performed at identical speed, but the pedalling force per crank rotation. That means: A low gear (where in the case of derailleur gears the chain runs on the small chainring and a large sprocket) allows you to climb steep hills with moderate pedalling force. You must, however, pedal relatively fast.

High gears (large chainring, small sprocket) are for riding downhill. Every turn of the pedals takes you many metres forward at correspondingly high speed.

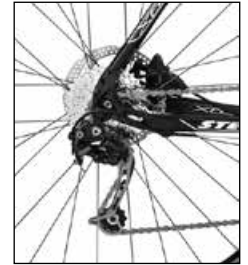
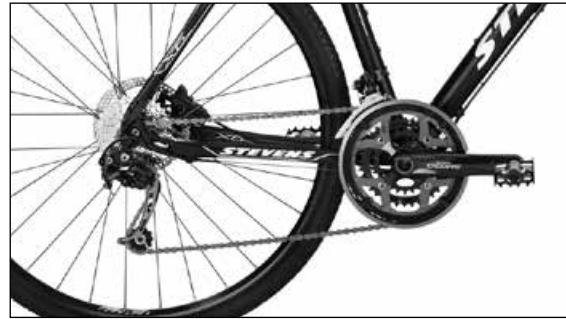
To ride economically you frequently have to shift gears. As with a motor vehicle, your “engine” wants to be kept within a certain speed range, if it is to give its best performance. On level ground your pedalling speed, also referred to as cadence, should be higher than 60 strokes a minute. Racing cyclists pedal at a rate between 90 and 110 strokes a minute on level ground. When climbing uphill, your cadence will naturally fall off somewhat. Your pedalling should, however, always remain fluid.

Finely graduated adjustments as well as an easy operability of modern bike gears are the best preconditions for an efficient riding. In addition, it reduces chain and sprocket wear as well as the strain on your knee joints.

6.1. Derailleur Gears

Derailleur gears are currently the most effective type of power transmission on bicycles. About 97 to 98 percent of the pedalling force performed is transmitted to the rear wheel with well-maintained and greased derailleur gears.

With specially designed sprocket teeth, flexible chains and clear-cut lever positions, shifting gears has become very easy. Most systems have an indicator on the handlebars showing the currently used gear.



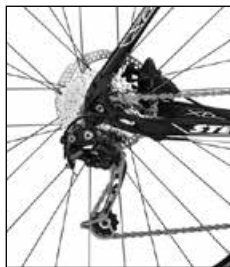
6.1.1. Functioning and Operation

Gear shifting is initiated by actuating a shifter, a combined brake and gear lever unit or by a short turn of the wrist with the twist grip.



Caution:

Be sure to always wear straight cut trousers or use trouser clips or the like to make sure your trousers do not get caught in the chain or the chainrings thus provoking a fall.



6.1.1.1. Push-Button Shifters

Shifters in form of push-button shifters work in different ways. With most of them pressing the large shifter moves the chain to the larger chainrings. The small shifter located in front of the handlebars, from the rider's viewpoint, moves the chain towards the smaller chainrings.

This means that any gear shift made by pushing the large thumb shifter on the right produces a lower gear, while pressing the large thumb shifter on the left moves the chain to the larger chainring, thus producing a higher gear.

With the Shimano inverse technology, used mainly on mountain bikes, this gear shift pattern for the rear derailleur of the Rapidfire finger shifter lever can be inverted and actuating the right thumb push-button shifts on a small sprocket with a heavier gear ratio.



The Shimano Rapidfire Plus shifters work according to the usual Rapidfire principle (see above), they offer however the possibility to operate the front "index finger lever" with the thumb initiating the same gear shifting action as with the index finger operation. The chain moves to the small chainring or small sprockets. You can therefore shift either with the thumb and the index finger or only with the thumb.

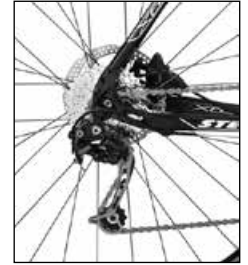
In addition, you can shift through several gears with one lever movement, i.e. a short lever movement shifts from one gear to the next gear, whereas a longer lever travel shifts over the next two gears.

6.1.1.2. Twist Grip Shifters

The principle of twist grips is different. Twisting the right-hand grip towards you moves the chain to a larger sprocket giving you a lower gear, while the same movement on the left produces a higher gear by moving the chain to the larger chainrings.



The shifting of a gear lever is communicated to the rear derailleur via Bowden cable. Then the rear derailleur swivels, causing the chain to climb onto the next sprocket. It is therefore important when changing gears to continue pedalling smoothly without force as long as the chain is moving between sprockets or chainrings! On today's bicycles there are, however, special guides in the chainrings which allow for changing gears under force. Shifting gears under load shortens, however, the service life of your chain considerably.



Furthermore, this can lead especially in the case of mountain bikes to a chain-suck, i.e. the chain can get jammed between chainstay and chainrings. Therefore, avoid shifting gears while pedalling with force, in particular when changing gears with the front derailleur.

Mountain bikes are usually fitted with one, two or three chainrings and up to eleven sprockets at the rear wheel hub. According to the combination this provides nominally a gear with up to 30 speeds.

Some gears with particular chain run should be avoided. Gears with an extremely oblique run of the chain may cause noises and result in an increased inner friction, which reduces the power transmission efficiency and hastens wear of the chain.

An unfavourable run of the chain is when the smallest chainring (front derailleur) is used with one of the two or three outermost (smallest) sprockets (rear derailleur) or when the largest chainring is used with one of the inmost (largest) sprockets.



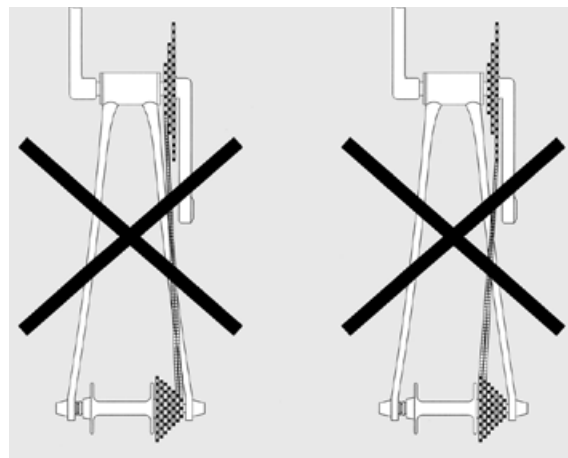
Note:

Avoid gears which involve an extremely oblique run of the chain.



Danger:

Shifting gears under load, i.e. while pedalling hard, can make the chain slip. At the front derailleur the chain may even slip off the chainrings when shifting under load. Furthermore, this can lead to a chain-suck, i.e. the chain can get jammed between chainstay and chainrings. This can result in a fall. This will at least shorten the service life of the chain and damage the frame.



6.1.2. Checking and Readjusting the Gears

The derailleur gears of your bicycle were carefully adjusted by your STEVENS dealer before delivery. The Bowden cables may, however, give way or compress the cable housings on the first kilometres making gear changing imprecise. This will result in the chain not wanting to climb onto the next smaller sprocket.



Danger: Practise shifting gears in a place free of traffic until you are familiar with the functioning of the different levers or twist grips. If you do so in road traffic, your attention might be drawn off from possible risks.

6.1.2.1. Rear Derailleur

In the case of imprecise shifting increase the tension of the bowden cable by turning the adjusting bolt through which it passes at the entry to the shift lever or rear derailleur. To do so, shift to the smallest sprocket and turn the clicking bolts anticlockwise in half turns until the cable is slightly tensioned.

After tensioning the Bowden cable check whether the chain readily climbs onto the next larger sprocket. To find out you either have to turn the cranks by hand or ride the bicycle and change gears.

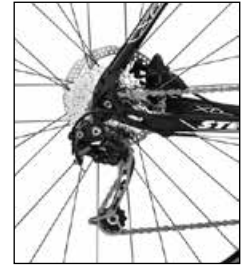
If the chain readily climbs onto the next larger sprocket, check whether it also readily shifts to the small sprockets when you change to a higher gear. You may need several tries to get the derailleur system properly adjusted.



6.1.2.2. Adjusting the Limit Stops

The rear derailleur is equipped with limit screws which limit the swivel range of the rear derailleur, thus preventing the rear derailleur and chain from colliding with the spokes or the chain from dropping off the smallest sprocket. The limit screws are adjusted by your STEVENS dealer. They do not alter their position during normal use. After a fall you should however always check the proper adjustment.

Shift with the right shifting lever to the highest gear. The inner cable is then totally relaxed and the chain will run on the smallest sprocket. Look from the rear of the bicycle at the cassette and check whether the teeth of the smallest sprocket and the teeth of the guide pulley are all in a perfectly vertical line.



Caution:

If your bicycle has tipped over or the rear derailleur received a blow, the rear derailleur or its mount might be bent. It is advisable to check its range of movement and readjust the limit screws, if necessary, after such an incident or after mounting new wheels on your bicycle.



Caution:

Adjusting the front and rear derailleur accurately is a job for an experienced mechanic. Be sure to also read the operating instructions of the gear manufacturer on the STEVENS CD-ROM. If you have any problems with the gears, please contact your STEVENS dealer.



Caution:

Always check after an accident whether the guide plates of the front derailleur are still parallel to the chainrings!



Danger:

Be sure to go on a test ride in a place free of traffic, after adjusting the gears of your bicycle.

If necessary, correct the position by means of the limit screws. The limit screws on rear derailleurs are often marked "H" for high gear and "L" for low gear. In this case high gear stands for high transmission ratio, i.e. with the chain running on the smallest sprocket.

If the screws are not marked, you will have to find out by trial and error. Turn one of the screws counting the number of turns and watch the rear derailleur. If it does not move, you are turning the wrong one. Turn back the counted rotations to find its original position.

Turn the screw clockwise to shift the rear derailleur towards the wheel and anticlockwise to shift it away from the wheel.

Continue by shifting the rear derailleur to the largest sprocket. Be careful as you do so, as not to let the rear derailleur collide with the spokes. When the chain runs on the biggest sprocket, see whether you can take the rear derailleur even further by moving the shift lever to the end of its travel. Then press the rear derailleur further towards the spokes by hand. Spin the wheel. If the derailleur cage moves towards the spokes or if the chain begins to move beyond the largest sprocket, the derailleur movement range needs to be limited. Turn the limit screw marked "L" clockwise until the rear derailleur is clear of the spokes.



6.1.2.3. Front Derailleur

Adjusting the front derailleur is a delicate job. The range within which the front derailleur keeps the chain on the chainring without itself touching the chain is very small. It is often better to let the chain drag slightly on the derailleur than to risk having the chain fall off the chainring, which would block the drive. The swivelling range is reduced in the same way as with the rear derailleur, i.e. by turning the limit screws marked "H" and "L". This is a job you should leave to your STEVENS dealer. As with the rear derailleur, the cable of the front derailleur is subject to lengthening and hence to reduced precision in gear changing.



If necessary, shift to the small chainring and increase the tension of the Bowden cable by turning the adjusting bolt through which it passes at the entry to the gear shifter.



Danger:

Adjusting the front derailleur is a very delicate job. Improper adjustment can cause the chain to jump off, thus interrupting suddenly the drive force. This can cause a fall!

6.2. Multi-Speed Hubs

One of the advantages of multi-speed hubs is their enclosed design which prevents them from being soiled. Another advantage is the simple operation, i.e. all gears can be shifted through with one gear shifter. The chain is not involved in the gear shifting, it is only important for the force transmission and always runs on the same chainring/sprocket. Due to these favourable factors, the chain lasts a lot longer than with derailleur gears, provided regular care. Multi-speed hubs are available in combination with freewheel and rim brake and with integrated back-pedal brakes. The Rohloff gear hub and Shimano Alfine can also be combined with disc brake.



6.2.1. Functioning and Operation

Multi-speed hubs are equipped with a twist grip or thumb shifter for changing gears as well as with an indicator showing the current gear. According to the hub manufacturer you can either continue pedalling without load on the pedals or freewheel. For more information see the operating instructions relating to the gears or ask your STEVENS dealer for advice. In any case, make sure changing gears makes as little noise as possible. Also observe the operating instructions of the gear manufacturer on the STEVENS CD-ROM.



6.2.2. Readjusting

The different gear steps are also adjusted via the cables. The systems of different manufacturers differ a lot. The adjusting mechanism is mainly located at the hub or at the gear shifter. There are two (red) marks which have to be brought into alignment. Therefore also observe the operating instructions of the gear manufacturer on the STEVENS CD-ROM. In case of inquiries ask your STEVENS dealer for advice.



Danger:

Regularly check the reliable fit of the bolted connection of the hub or back-pedal brake support at the frame (brake torque arm).



Danger:

Make yourself familiar with the gears in a place free of traffic. Be sure to check above all the brakes. If you do so in road traffic, practising shifting and braking might draw off your attention from possible risks.



6.2.3. Checking the Chain Tension

In the case of multi-speed hubs which are not equipped with a sprung load chain tensioner the tension of the drive chain has to be checked occasionally, i.e. every 1,000 km (600 miles) according to use. The amount of play, midway between chainring and sprocket, should not be more than two centimetres.



Danger:

Insufficient chain tension can make the chain come off, thus resulting in an immediate loss of pedalling resistance. The loss of drive resulting thereof can result in a loss of control and in an accident with serious consequences.



Danger:

Check regularly the reliable fit of the axle nuts on the frame.



Caution:

An over tensioned chain increases chain wear and chainring wear considerably.



6.2.3.1. Readjusting the Chain Tension on Bicycles with Adjustable Drop-Outs

To adjust the chain tension the bolted connections of the rear wheel hub have to be released on both sides. Pull the rear wheel to the rear and retighten the rear wheel hub on both sides. Check the chain tension. Make sure the amount of play midway between sprockets and chainring is not more than two centimetres.

After adjusting the proper chain tension tighten the rear wheel axle bolt to a torque of 30-45 Nm by using a torque wrench.

6.3. Chain Maintenance

It's all that simple: Proper lubrication makes for enjoyable riding. What counts are, however, not the quantity, but the distribution and regular application of lubricant.

- Clean your chain from dirt and lubricant with an oily rag from time to time. There is no need to use special degreasers.
- Having cleaned the chain as thoroughly as possible, apply chain oil, wax or grease to the chain links.
- To lubricate the chain, drip the lubricant onto the rollers while you turn the crank. Once this is done, turn the cranks a few more times; then let the bicycle rest for a few minutes so that the lubricant can disperse.
- Finally rub off excess lubricant with a rag so that it does not spatter around or attract dirt during riding.

6.3.1. Chain Wear

Although the chain is one of the wearing parts of your bicycle, there are still ways of influencing its service life. Make sure the chain is lubricated regularly, especially after riding in the rain. Try to only use gears which run the chain in the straightest line between the sprockets and chainrings and get in the habit of high cadence pedalling. Chains running on derailleur gears are often worn out as early as after about 1,000 to 3,000 km (600 to 1,800 miles). Heavily stretched chains impair the operation of derailleur gears. Cycling with a worn-out chain also accelerates the wear of the sprockets and chainrings. Replacing these components is relatively expensive compared with the costs of a new chain.

It is therefore advisable to check the condition of the chain at regular intervals. For this purpose shift the chain on the large chainring. Take the chain between your thumb and index finger and try to lift it off the teeth. If you can lift it off clearly, it is seriously lengthened and probably in need of replacement.



Your STEVENS dealer has accurate measuring instruments for precise chain inspection. Replacing the chain should be left to an expert, as some of the modern chains are not equipped with a master link. Instead they often have a continuous design and require special-purpose tools for mounting. If you need help, ask your STEVENS dealer to select and mount a chain appropriate to your gear system.



Danger: An improperly joined, insufficiently locked or heavily worn chain can break and result in a fall. Have the chain replaced by your STEVENS dealer.



Danger:

Keep cleaning agent or lubricants off the rotors and the brake pads. In case this happens nevertheless, clean the rotor immediately with pure isopropyl alcohol. Once a brake rotor is soiled, it will never be as effective as the original one.



Note:

For the sake of the environment, only use biodegradable lubricants. Bear in mind that some of the lubricant can end up on the ground, especially in wet conditions.



7. The Wheels

The wheels of your bicycle create the contact to the road or track you are riding on. They are subject to considerable stress through the weight of rider, the luggage and through bumpy road surfaces or ground. Although the wheels are manufactured with great care and delivered accurately trued, this does not prevent the spokes from losing a little tension on the first kilometres. Ask your STEVENS dealer to true up the wheels after you have bedded them in over about 100 to 300 kilometres (60 to 180 miles). Check the wheels regularly after you have run them in. It will rarely be necessary to tighten the spokes.

The wheel consists of hub, spokes and rim. The tyre is mounted onto the rim so that it encases the inner tube. There is a rim tape running around the base of the rim to protect the sensitive inner tube against the spoke nipples and the edges of the rim base, which are often sharp.

7.1. Tyres, Tubes, Rim Tapes, Valves, Inflation Pressure

The tyres provide grip and traction on the road which is absolutely necessary for braking, accelerating and taking turns.

In addition, they provide smooth running and riding comfort by absorbing inferior shocks. The cross-country mobility or the inclination of the road depends on the nature of the tyre carcass and the tyre tread. As some of the requirements are mutually exclusive, there are many different tyre types for different uses. Ask your STEVENS dealer to inform you about the best tyre for you.



Caution:

If you have a bicycle with tubular tyres, please read the instructions of the tyre/rim manufacturer on the STEVENS CD-ROM.

If you want to replace a tyre, you need to consider the actual size of the old tyre. It is marked on the side of the tyre. There are two designations: One of the sizes is the standardised size in millimetres which is more precise, the number sequence 50 - 559 means that the tyre is 50 mm wide when fully inflated and has an inner diameter of 559 millimetres. The other designation for this tyre reads 26 x 1.90 which refers to inches. Tyres have to be inflated to the correct air pressure in order to work properly. Adequately inflated tyres are also more resistant to flats. An insufficiently inflated inner tube can easily get pinched ("snake-bit-ten"), when it goes over a sharp kerb.

The air pressure recommended by the manufacturer is given on the side of the tyre or on the type label. The lower of the two pressure specifications makes for better cushioning and is therefore best for off-road cycling. Rolling resistance decreases with growing pressure, but so does comfort. A high tyre pressure is therefore most suitable for riding on tarred roads. A higher pressure hardly means a lower resistance, it only makes the tyre harder.

Ask your STEVENS dealer for advice. Inflation pressure is often given in the old system of units, i.e. in psi (pounds per square inch). The table on the right gives the most common pressure values in terms of three systems. The tyre and rim alone are not able to hold the air. Therefore, an inner tube has to be placed inside the tyre to retain the air pressure. The tube is pumped up via a valve.

An exception to this are the tubeless systems for mountain bikes. In this case, the rim and the tyre hold the air without inner tube. To find out whether or not you have tubeless tyres, look for the UST-marking. The valve is provided with a plastic cap to protect it from dirt. The tubeless-ready-tyres are not tubeless tyres. By adding a special sealing fluid they can however be converted to tubeless tyres.

There are three valve types in general use on today's bicycles

- Dunlop or Woods valves, the usual valves
- Sclaverand or race valves: This type is nowadays used on almost all types of bicycles. It is designed to withstand extremely high pressures
- Schrader or car valve: This is an adapted car tyre valve which is mainly used on mountain bikes.

These three valve types are fitted with a plastic cap to protect them from dirt. The car valve can be inflated with a suitable pump directly after removing the protective cap.



With race valves you first have to undo the small knurled nut a little and press it in carefully until air starts to escape. With this valve type it may happen that the valve body is not screwed in properly and that air leaks out slowly. Check the seat of the valve body in its stem.



Tyres with car valves can conveniently be inflated at car filling stations with a compressed air dispenser. A compressed air dispenser must be used very carefully as you may otherwise overinflate the tyre. It might burst. To let out air press the needle in the centre of the valve by using e.g. a spanner/key.

Hand pumps are often unsuitable for inflating tyres to the necessary pressure. A better choice is a stand or foot operated pump equipped with a manometer which enables you to check the pressure at home.

Your STEVENS dealer has adapters for all valve types. They allow you to inflate any type of inner tube at the filling station.

Replace tyres with a worn tread or brittle or frayed sides. Dampness and dirt penetrating the tyre can cause damage to its inner structure. Replace spoilt rim tapes immediately. In the extreme case, the inner tube may suddenly burst!

Conversion table for tyre pressure psi in bar

psi	bar	psi	bar	psi	bar
30	2.1	70	4.8	110	7.6
40	2.8	80	5.5	120	8.3
50	3.5	90	6.2	130	9.0
60	4.1	100	6.9	140	9.7



Danger:

Treat your tyres well, in particular avoid sharp edges where possible! Never inflate your tyres beyond the maximum permissible pressure, otherwise they might burst or come off the rim during the ride. Risk of falling!



Danger:

Always ride your bicycle with the prescribed tyre pressure and check the pressure at regular intervals.



7.2. Rim Trueness, Spoke Tension

The spokes connect the rim to the hub in the middle of the wheel. An even spoke tension makes for the true running of the wheel. If the tension of individual spokes changes, e.g. as a result of riding too fast over a kerb or due to spoke breakage, the tensile forces acting on the rim become unbalanced and the wheel will no longer run true.

The functioning of your bicycle may even be impaired before you notice the wobbling appearance of a wheel that has gone out of true. With rim brakes the sides of the rims also serve as braking surfaces. An untrue wheel can impair the braking effect.

It is therefore advisable to check the wheels for trueness from time to time. For this purpose lift the wheel from the ground and spin it with your hand. Watch the gap between rim and brake pad or, in the case of disc brakes, between frame and rim or tyre. If the gap varies by more than a millimetre, you should ask a skilled mechanic to true up the wheel. Untrue rims can be an indication of tyres with ruptured sides or broken axles or spokes.



Danger:

Do not ride with untrue wheels. In the case of extreme side-to-side wobbles, the brake pads can miss the rim and get caught in the spokes! This normally results in an immediate blocking of the wheels. Risk of falling!



Note:

Truing wheels is a difficult job which you should definitely leave to your STEVENS dealer!



7.3. Wheel Fastening with Axle-Nuts, Quick-Releases or Thru Axles

The wheels are fastened with the hub axles to the frame. The axle is clamped tight in the drop-outs by means of hexagon nuts or a quick-release.

7.3.1. Wheel Fastening with Axle-Nuts

Axle-nuts are usually released or tightened with a 15-mm-open-end wrench. You should take this tool with you on a cycle tour, as punctures can hardly be repaired without this tool.

7.3.2. Wheel Fastening with Quick-Releases

If you have a quick-release, you do not need any tool. Just release the lever, unscrew it a few turns, if necessary, and take out the wheel. This is just as easy for a potential thief!

For this reason you can replace the quick-releases by special locks. They can only be opened and closed with a special, coded key or an Allen key.

The front wheel has normally drop-out catches which are intended to hold the wheel safe in case the fastening gets loose. Although the use of quick-releases is theoretically very easy, they have repeatedly been the cause of accidents as a result of a wrong handling. Quick-release retention mechanisms essentially consist of two manipulable parts:

- The hand lever on one side of the hub which creates a clamping force via a cam when you close it.
- The tightening nut on the other side of the hub with which the preload on the threaded rod is set.

7.3.2.1. How to Securely Fasten the Wheel with Quick-Releases

- Open the quick-release. You should now be able to read “Open” on the lever.
- Move the lever back, as if to close it. Now you should be able to read “CLOSE” on the outside of the lever. From the start of the closing movement up to about the first half of its travel the lever should move very easily, i.e. without clamping the wheel.
- Over the second half of its travel, the force you need to move it, should increase considerably. Towards the end of its travel the lever should be very hard to move. Use the ball of your thumb while your fingers pull on an immovable part such as the fork. In its end position the lever should be parallel to the bike, i.e. it should not stick out to the side. The lever must lie close to the frame or fork so that it cannot be opened accidentally.
- To check whether the lever is securely locked try to turn it while it is closed. Press on the end of the lever from the front side.
- If you can turn the lever around, the wheel is not securely fastened. Open it and increase the preload. Screw the tightening nut on the opposite side clockwise by half a turn.
- Close the lever again and check it again for tightness. If the lever can no longer be turned, it is properly fastened.
- Finally lift the bike a few centimetres from the ground so that the wheel is suspended and hit the tyre from above. If it is properly fastened, the wheel will remain firmly fixed in the drop-outs of the frame.





7.3.3. Wheel Fastening with Thru Axles

There is a wide range of thru-axle-systems available now. Some systems are tightened with quick-releases. Other systems may require special tools for assembly or disassembly.

7.3.3.1. RockShox Maxle thru-axle-system

If your bike is equipped with a Maxle thru-axle-system, put the wheel into the fork and mount the rotor in the brake calliper. Bring the wheel into the right position between the drop-outs and slide the axle with open Maxle quick-release levers from the right side through the drop-out and the hub.

Make sure the quick-release lever is completely open and lies in the axle recess. As soon as the axle thread engages with the thread of the left fork leg, close the axle by turning it clockwise. During the first rotations you should be able to rotate the thru axle nearly without resistance.

Now turn the lever forcefully clockwise until the axle is hand-tight. Make sure the quick-release lever does not slip out of the axle recess during tightening. Finish by closing the Maxle thru axle quick-release lever like a usual quick-release lever. Make sure the quick-release lever does not stand out to the front or to the side.



7.3.3.2. Fox E-Thru 15 mm

If your bike is equipped with a Fox E-Thru 15-mm-thru-axle-system, put the front wheel into the fork and mount the rotor in the brake calliper. Bring the front wheel into the right position between the drop-outs and slide the axle with open E-Thru quick-release lever from the left side through the drop-out and the hub. As soon as the axle thread engages with the thread of the right fork leg, close it by turning it clockwise. During the first rotations you should be able to rotate the thru axle nearly without resistance. Tighten the axle a little and then release it by about a third of a turn.

Close the E-Thru quick-release lever like a usual quick-release lever. From the start of the closing movement up to about the first half of its travel the lever should move very easily without clamping the wheel, whereas over the second half of its travel the force you need to move it should increase considerably. Towards the end of its travel the lever should be very hard to move.

If the lever cannot be closed completely, re-open it and turn the axle a little anticlockwise. Try closing the quick-release lever once again. Use the palm of your hand while your fingers pull on an immovable part, such as the fork leg, but not on a spoke or the rotor. In its end position the quick-release lever should be tight so that it can no longer be turned. Make sure the quick-release lever does not stand out to the front or to the side. The best closing position is in nearly upright position in front of the lower leg.



Danger:

Check the tight fit of whatever wheel fastening system possible after a few kilometres (miles) or hours of use, at the latest however after 4 hours or 80 km (50 miles). A loose wheel fastening can throw the rider off his bike with unforeseeable consequences for life and limb.

7.3.3.3. Fox 20 mm

If you have a Fox 20-mm-system, open both quick-release levers in the bottom area of both fork legs to mount the front wheel. Put the front wheel into the fork and mount the rotor at the same time in the brake calliper.

Bring the front wheel into the right position between the drop-outs and slide the axle from the right side through the drop-out and the hub. Unfold the lever from the axle. As soon as the axle thread engages with the thread of the right fork leg, close it by turning it clockwise.

During the first rotations you should be able to rotate the thru axle nearly without resistance. Tighten the axle until it is hand-tight. Refold the lever of the thru axle. Close both quick-release levers. From the start of the closing movement up to about the first half of its travel the levers should move very easily without clamping the wheel, whereas over the second half of its travel the force you need to move it should increase considerably. Towards the end of its travel you should clearly feel resistance.

Use, if necessary, the palm of your hand while your fingers pull on an immovable part, such as the fork leg, but not on a spoke or the rotor.



7.3.3.4. SR SUNTOUR QLOCK-system 15 mm

If your bike is equipped with a SR SUNTOUR QLOCK-system 15 mm, put the wheel into the fork and mount the rotor, if available, in the brake calliper. Bring the wheel into the right position between the drop-outs.

Open the quick-release lever of the SR SUNTOUR thru axle fully. Turn the counter nut on the thru axle anticlockwise until the expander releases. Slide the axle with open QLOCK quick-release lever and released expander from the right side through the drop-out and the hub until the thru axle engages with a clear "click". Now turn the quick-release lever forcefully clockwise until the axle is hand-tight. Finish by closing the quick-release lever like a usual quick-release lever. Make sure the quick-release lever does not stand out to the front or to the side.





Danger:

Never ride a bicycle without having first checked whether the wheels are securely fastened! A wheel that comes loose during the ride will throw you off your bicycle!



Danger:

Make sure the levers of both quick-releases are always on the side opposite the chain drive. This will help you to avoid mounting the front wheel the wrong way round. In the case of disc brakes we recommend for a reliable clamping that you position the quick-release on the side of the chain drive.



Note:

If your bicycle is equipped with quick-releases, be sure to lock the frame to an immovable object together with the wheels when you leave it outside.

7.4. Repairing Punctures

Tyre punctures can happen to any cyclist. As long as you have the necessary tools for changing tyres and tubes and a spare tube or a tyre repair kit, this need not mean the end of your cycle tour, however. For bikes with quick-releases all you need are two tyre levers made of plastic and a pump; if your wheels are secured with nuts you also need a suitable wrench for removing the wheel.

7.4.1. Wheel Removal

- If your bicycle has **cantilever brakes and V-brakes** you first have to disengage the brake cable from the brake arm. To do this grip around the wheel with one hand and press the brake pads and arms together. In this position it should be easy to disengage the usually barrel-shaped nipple or, in the case of V-brakes, the outer cable.



- In the case of **hydraulic rim brakes** deflate the tyre completely or dismount one brake unit, if you have a quick-release brake. Be sure to read the operating instructions of the brake manufacturer on the STEVENS CD-ROM. Make sure to fix the brake pad exactly in parallel to the braking surface of the rim when mounting this brake unit.



- In the case of **drum, back-pedal brakes and multi-speed hubs release** the torque arm supporting the drive and brake forces to the frame.



- If you have **derailleur gears**, you should shift the chain to the medium or small chainring or to the smallest sprocket before removing the wheel. This shifts the rear derailleur right to the outside where it does not interfere with the removal of the wheel and the chain tension is not too high.



- If you have **disc brakes** and dismount the wheel for the first time, check the exact position and condition of the brake pads and/or wear indicators (ear or nose-shaped metal protrusions). This will help you to verify subsequently, whether the brake pads are still in the proper position after dismounting. Open the quick-release of the wheel, as usually. Compared to all other brake systems the disc brake does not interfere with the removal of the wheel; the wheel can immediately be removed from the drop-outs. Do not activate the brake lever as long as the wheel is dismounted; this would change the position of the brake pads. This can make the brake drag along the disc after the remounting.

- Open the nut or the quick-release, as described in chapter "Wheel Fastening with Quick-Releases". If you cannot remove the wheel after releasing the lever or nut, it is probably still being held in place by drop-outs or as metal securing devices reaching into a recess of the drop-out. In these cases, just release the quick-release adjusting nut by a few turns and slip the wheel past the catch.



Caution:

Do not pull on the brake lever after dismounting a wheel when your bicycle has hydraulic brakes.



Note:

Insert the transport locks in the brake callipers of the disc brake when you have dismounted the wheel.



- You will find it easier to remove the rear wheel, if you pull the rear derailleur rearwards a little.
- Lift the bicycle off the ground and give the wheel a gentle tap with your hand so that it drops out.



7.4.2. Removing Clincher and Folding Tyres

- Screw the valve cap and the fastening nut off the valve and deflate the tyre completely.
- Press the tyre over its entire circumference from the sides towards the centre of the rim. This will ease the removal.



- Apply the tyre lever to one bead of the tyre opposite the valve and lever the tyre out of the rim in this area. Hold the tyre lever tight in its position.
- Slip the second tyre lever between rim and tyre at a point about ten centimetres beyond the first one and lever the next portion of the bead over the edge of the rim.



Danger:

Do not file off the drop-out catches!

- After levering a part of the tyre bead over the edge of the rim you should normally be able to slip off the whole tyre on one side by moving the tyre lever around the whole circumference.
- Now you can pull out the inner tube. Take care the valve does not get caught, as this can damage the inner tube.



- Inspect the inflated tube and look for the puncture. A bucket of water may help you.
- Repair the puncture according to the operating instructions of the repair kit manufacturer.
- After having removed the tyre, you should check the rim tape. The tape should lie squarely in the base of the rim covering all spoke ends and should neither be torn nor brittle. In the case of double wall rims the tape must cover the entire rim base, but it should not be so broad as to stand up along the inside edges of the rim trough.

For this type of rim only use rim tapes made of fabric or durable plastic. In case you are in doubt about the rim tape, contact your STEVENS dealer.

7.4.3. Mounting Clincher and Folding Tyres

When mounting a tyre make sure no foreign matter such as dirt or sand gets inside the tyre and you do not damage the inner tube.

- Slip one bead of the tyre onto the rim. Using your thumbs, press the bead over the edge of the rim over the entire circumference. You should be able to do this without any tools, regardless of the type of tyre. Stick the valve of the tube through the hole in the rim.



Note:

If you have a puncture while riding, do not pull out the inner tube completely. Leave the valve sticking in the rim and first look for the hole where the air escapes. Pump up the inner tube. When you have found the hole, look for the corresponding place on the tyre and examine it. Often you will find the foreign body sticking in the tyre.



- Inflate the inner tube slightly so that it becomes round and push it into the tyre all the way round. Make sure not to leave any folds in the tube.
- To finish mounting the tyre start at the point opposite the valve. Using your thumbs, press the second bead of the tyre over the edge of the rim as far as you can. Make sure the inner tube does not get pinched and squashed between tyre and rim. This is prevented by pushing the inner tube into the tyre hollow with a finger as you work along.
- Work the tyre into the rim by approaching the valve symmetrically from both sides. Towards the end you will have to pull the tyre vigorously downwards to make the already mounted portion of the tyre slip towards the deepest part of the rim base. This will ease the job noticeably on the last centimetres.
- Check again the proper seat of the inner tube inside the tyre and press the last stretch of tyre over the edge of the rim by using the balls of your thumb. It will help you to bring the wheel to rest on your hip.



- If this does not work, you will have to use tyre levers. Make sure the blunt ends point towards the inner tube and the inner tube does not get damaged.
- Press the valve deep into the tyre so that the inner tube does not get caught between rim and tyre beads. Does the valve stand upright? If not, dismount one bead again and reposition the inner tube. To make sure the inner tube does not get pinched between rim and bead, inflate the tyre a little and then move it sideways back and forth between the sides of the rim. While doing this you can also check whether the rim tape has been displaced.



- Inflate the inner tube to the desired pressure. The maximum pressure is indicated on the side of the tyre.
- Check the proper seat of the tyre by means of the “witness line” on the side of the tyre just above the edge of the rim. Make sure the witness line is even with the rim edge all the way around the tyre.

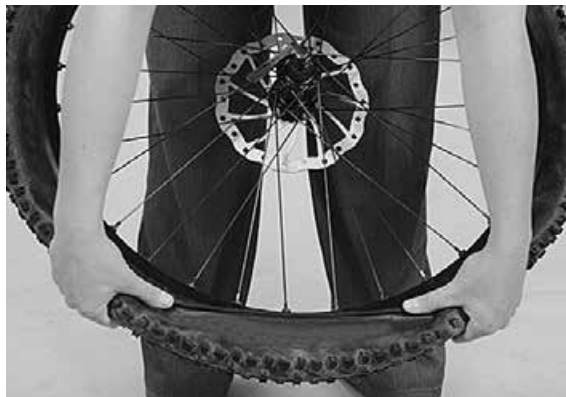
7.4.4. Removing Tubeless Tyres

Deflate the tyre completely. Use your hands to press the tyre from the sides towards the centre of the rim, until both beads lie slack in the centre of the rim. Start dismounting the tyre at the point opposite the valve and lift one tyre bead with your fingers over the edge of the rim. Slip the entire tyre bead over the rim. Then pull the other bead off the rim, as well.



7.4.5. Mounting Tubeless Tyres

Before mounting a tyre make sure it is free of dirt and lubricant on the inside and around the beads. Wet both beads all around with soapy water or with tyre fitting lubricant before mounting. Do not use tyre levers!



Press the tyre onto the rim with your hands only to avoid damage to the beads. Press one bead over its entire circumference over one edge of the rim. Then press the second tyre bead over the rim edge. Centre the tyre in the rim. Make sure the tyre is properly seated in the rim base and the beads lie symmetrically on either side of the valve. Inflate the tyre to its maximum air pressure. The pressure is usually specified on the side of the tyre.





Danger:

In the case of disc brakes, make sure the rotor does not drag on the brake calliper or the brake pads! Inappropriate wheel mounting can make you loose control of your bicycle and result in an accident! If your bicycle has rim brakes, connect the brake cable and check whether the brake pads hit the braking surfaces, before you set off again. Make sure the wheel is properly seated and firmly fixed in the drop-outs. After mounting the wheel make sure the brake pads or the rim are free of grease or other lubricants. Be sure to do a brake test!

In doing so the tyre engages with the rim. Check whether the tyre is properly seated by inspecting the fine witness line all around the tyre just above the side of the rim. This witness line should be even to the rim all around the tyre. Finish by adjusting the air pressure through the valve from the maximum pressure. Please observe the recommended tyre pressure range.



7.4.6. Mounting Wheels

Mounting the wheel is done in the reverse order of dismounting. Make sure the wheel is correctly seated in the drop-outs and accurately centred between the fork legs or the rear and chainstays.

Check the proper seat of the quick-release and the drop-out catches, as described in chapter "Wheel Fastening with Quick-Releases" and hook in the brake immediately! Also check the proper seat of the thru axles, if available, as described in chapter "Wheel Fastening with Quick-Releases".

Spin the wheel and do a brake test. Make sure it does not drag.

8. The Headset

The headset connects fork, stem, handlebars and front wheel to the frame, but allows them to turn freely as a unit. It must turn with virtually no resistance, if the bicycle is to run straight, stabilising itself as it travels. Shocks caused by uneven road surfaces expose the headset to considerable levels of stress. It may therefore happen to become loose and maladjusted.

8.1. Checking the Bearing Play

- Check the headset for play by placing your fingers around the upper head cup.
- Pull the front brakes with your other hand and push the bicycle firmly back and forth with the wheel remaining on the ground.
- If there is play in the bearing, the upper head cap will move noticeably relative to the lower cup and you will feel a jerk.
- Another way to check the headset is to lift the front wheel a little off the ground and then let it drop. If there is play in the bearing, you will hear a rattling noise in this area.
- To check the bearing for ease of running, lift the frame until the front wheel no longer touches the ground. Move the handlebars from the left to the right. The front wheel should turn very easily from far left to far right and back without catching anywhere. A light tap on the handlebars should be enough to turn the wheel to the side.



8.2. Adjusting Conventional Headsets

For the adjustment of conventional headsets you need two flat, open-end wrenches. Depending on the diameter of the headset the width of the open-end wrench is 32 millimetres at least.

- Hold the front wheel tight between your legs, apply the wrench and release to top counter nut.
- Turn the lower bearing cup race a little downwards. Do not tighten the bearing cup race! This could damage the bearing immediately.
- Keep the bearing cup race tight with a wrench to maintain the adjustment. Tighten the counter nut with the second open-end wrench against the bearing cup race.
- Check it again for play. If the fork cannot be turned without any resistance and play, the bearing is improperly adjusted. Adjust the bearing play once again. This procedure of adjusting can take several attempts. The important thing is that the bearing turns without any resistance and play. This is the only way to ensure a long service life.



Danger:

Riding the bike with a loose headset increases the stress on fork and bearing. This can result in fork breakage with severe consequences!



Caution:

Adjusting the headset requires a certain amount of experience and should therefore be left to your STEVENS dealer. If you want to try it on your own, be sure to read the operating instructions of the headset manufacturer on the STEVENS CD-ROM before doing any adjusting.



8.3. Adjusting the Threadless Headset: Aheadset® Headsets

The special feature of this system is that the stem is not encased by, but rather clamped onto the steerer tube, which in this case is threadless. The stem is an important part of the headset bearings. Its clamping force secures the bearing in its set position.

Some frames are delivered with the headset already mounted in the steerer tube. The headset is then no longer visible. There is a seamless transition of spacer and the fork into the steerer tube. The adjustment of the bearing is the same as with the usual Aheadset®-headset. But in this case you check the bearing play in the transition area of frame and fork.



Danger:

Check the secure seat of the stem after having adjusted the bearings, by holding the front wheel between your knees and trying to twist the handlebars relative to the front wheel. A loose stem can throw you off your bicycle!



Caution:

Do not overtighten the upper bolt, it only serves the purpose of adjusting the bearing play, not of securing the stem!



Caution:

In the case of full carbon forks the torque values are often clearly below the specifications of the stem manufacturers. A sufficient clamping is usually already achieved with inferior forces. Tighten carefully by approaching the prescribed maximum torque value in small steps until the stem no longer turns relative to the fork or front wheel. Too high torque values can destroy the steerer tube! To ensure a larger clamping surface, slide a spacer on top of the stem.

- Retighten a little the clamping bolt(s) of the stem until the stem no longer turns relative to the fork. Do not exceed the torque values specified by the stem manufacturer, see chapter "Recommended Torque Settings".
- Check the headset for play, as described further above. Take care not to overtighten the bearings, as this could easily damage them.



9. Special Characteristics of Carbon and Framesets

As is the case with all lightweight products and in particular with products made of carbon (carbon-fibre-reinforced plastics), also referred to as CRP, some characteristics have to be kept in mind with the STEVENS mountain bike carbon components.

Carbon is an extremely strong material which combines high resistance with low weight. However, carbon is brittle and when subject to an overload it does not show any deformation, even though its inner structure may be damaged already. In contrast to steel or aluminium, carbon components that have sustained damage to their inner fibres as a result of excessive stress will show no outwardly visible deformation.

Carbon components that have been subjected to overstress are liable to fail during use, possibly causing an accident with unforeseeable consequences. If you have had a critical incident with your bicycle, we advise you to have the relevant component inspected or the whole bicycle by your bicycle dealer. If necessary, they can contact our after-sales department for any inquiries.

For safety reasons components made of carbon must not be repaired. Replace a damaged component immediately! Prevent further use by third parties by taking appropriate measures.

Components made of carbon should under no circumstances be exposed to excessive heat. Therefore, never have a carbon component enamelled or powder-coated. The temperatures required for doing so could destroy it. Do not leave carbon items in a car in direct sunlight for prolonged periods or near sources of heat.

Like all extremely lightweight components, carbon components have a limited service life. The handlebars and stem should therefore be replaced at regular intervals, e.g. every 2 years, depending on frequency and intensity of use, even if they have not been involved in accidents or similar incidents.

Please note that loads as a result of a fall can also damage the frame. In particular falls on sharp-edged objects, such as coarse gravel, can compromise the frame structure. If you are in doubt, ask your STEVENS dealer to check the frame.

9.1. Care Instructions

Components made of carbon reinforced fibre should be cleaned with a soft rag and clear water. Add, if necessary, a little washing up liquid. Remove tough stains of oil or grease with a petroleum-based cleaning agent. Never use degreasing agents containing acetone, trichloroethylene, methyl chloride etc., solvents or non-neutral, chemical or solvent-containing cleaning agents that could attack the surface!

You can use car wax to protect the surface and make it shine. Polishing agents contain solid constituents that might attack the surface.



Danger:

If carbon components on your STEVENS bicycle produce any creaking or cracking noises or show any external sign of damage, such as gouges, cracks, dents, discolourations etc., do not use the STEVENS bicycle any longer. Contact your bicycle dealer immediately; they will check the component thoroughly.



9.2. Aluminium and Carbon Framesets

STEVENS offers certain high-quality carbon and aluminium frames as bare framesets. The person completing the frame and mounting the add-on parts must therefore ensure that all components are compatible and properly mounted. STEVENS cannot be held responsible for any component combination possible. For this reason it is absolutely impossible to describe every conceivable option in this manual. We therefore strongly recommend that you always read the component manufacturers' operating instructions on the STEVENS CD-ROM, as well.



Caution:

Do not clamp the frame on an assembly stand by its tubes! This could cause damage to the thin-walled tubes. First mount a sturdy aluminium seat post and use this to clamp the frame, or use an assembly stand which holds the frame at three points from inside or which holds the fork and bottom bracket shell.



Caution:

For your own safety, never do any work unless you feel absolutely sure about it. If you are in doubt, ask your STEVENS dealer for help!

Be aware that these instructions may require further explanation, depending on the experience and/or skills of the person doing the work. For some jobs you may require additional (special) tools, e.g. a torque wrench, or supplementary instructions.

Improper assembly can render the bicycle unsafe. Have your bicycle therefore assembled by an authorized STEVENS partner.

Frames are delivered ready for assembly, i.e. with threads cut and bearing seats and seat tube faced. There is no need for any reworking on the frame.

Do not modify the frame or its functioning parts, e.g. the adjustable cable guides etc., by filing, boring or the like.

Be sure to use high-quality assembly grease when mounting add-on parts to the frame. Except: for carbon seat posts in general, but also for aluminium seat posts in carbon frames and stems on carbon forks. In these cases you should use special carbon assembly paste! This helps to avoid corrosion. Otherwise you may find it impossible to disassemble the bicycle after a certain period of time.

Protect the areas which are exposed to stone chips, to abrasion by the cables and to contact with the chain with transparent adhesive film. These areas are in particular located on the underside of the down tube, on the head tube and on the chainstay on the side of the chain drive. You can also use special neoprene chainstay protectors.

Note when mounting the stem, the handlebars and the brake levers/shifters that they do not touch the top tube when turning front wheel, fork, stem and handlebars to the side. In case of a fall, they may otherwise collide and damage the top tube on this occasion.



Seat post

If you have a STEVENS Scope team, Juke team, Fluent team und Glide team frame, the seat post diameter must be 31.6 ± 0.05 mm. Please note the instructions on mounting and adjusting the seat post and the saddle in chapter "Adjusting the Saddle to the Correct Height".

Headset

All frames are delivered with fully mounted bearing cups and an integrated headset.



The frames are designed for the following fork travels:
 Scope, Haze, Juke, Manic, Wave, Stock, Fluent Lady: 100 mm
 Fluent: 120 mm
 Glide: 140 mm
 Ridge: 160 mm

Bottom bracket bearing:

Thread type: BSC 1.270 x 24TPI, (right side left hand threading!)

The housing width is 68 ± 0.5 mm.

The housing width for pressfit is 92 mm (or 89.5 mm with 2.5 mm spacer).
 Common cartridge bearings can be mounted directly into the bottom bracket shell of all models with high-grade grease.

Observe the torque specifications of the bottom bracket manufacturer.



Some frames have a threadless pressfit bottom bracket, the shell width is 92 mm. In this case the bearing cups are press fitted directly into the frame. For mounting and dismounting of such pressfit bottom brackets contact your STEVENS dealer.

Rear frame width:

135 ± 0.5 mm (quick-release)

142 ± 0.5 mm (thru axle)

Replaceable derailleur hanger:

Secure the bolts with medium/strong non-permanent threadlocker (removable with tools) and observe the torque value of 2 - 3 Nm. Do not exceed the maximum torque of 3 Nm.



Danger:

Whoever assembles the bicycle from a bare frame carries the responsibility for ensuring that the components are selected and mounted in accordance with the manufacturers' guidelines, generally accepted standards and the state of the art in science and technology. In case there are any questions regarding compatibility of individual parts with the frame, please contact our after-sales department.



Note:

Some components have torque values printed or labelled on them. Be sure to observe these maximum values. Also observe the operating instructions of the component manufacturers on the STEVENS CD-ROM.



Caution:

Handlebars or brake levers/shifters can damage the frame when they are turned too far to the side. If you have a carbon frame this can lead to cracks in the top tube. This is a typical damage of many bicycles and therefore not covered by the warranty.



Bottle Cage

Observe a tightening torque of 2 - 3 Nm. Do not exceed the maximum torque of 3 Nm.

Tighten the bolts carefully by approaching the maximum permissible torque in small steps. Check the secure seat of the component, as described in the relevant chapters.

For parts with no torque range given, tighten the bolts gradually and check in between regularly the reliable fit of the component.

9.3. Carbon Handlebars

- Mountain bike handlebars made of carbon are only designed for cross-country and marathon bicycles, as well as for the respective intended use.
- Do not use bar ends on carbon handlebars which are not designed for bar ends.
- Do not shorten, modify or change the handlebars or the stem.
- Make sure the brake levers are always within easy reach.

9.3.1. Mounting Carbon Handlebars

- Verify that the stem and the handlebars tube always have matching clamp diameters! Stems with a 31.8 mm clamping are for example only compatible with handlebars with a clamping diameter of 31.8 mm.

Mounting non-matching parts may cause the clamping to fail and lead to a serious crash. We recommend that you always combine components of the same manufacturer, as they are designed to fit and function as an integrated system. STEVENS assumes no responsibility for problems resulting from carbon handlebars delivered by STEVENS being used with an unsuitable stem.

In case you prefer the stem of another manufacturer, please contact their sales department and get more information on the clamping diameter and combination possibility with carbon handlebars. Also observe in this case the mounting instructions of the stem manufacturer.

- Before mounting check all clamping surfaces of the stem for sharp edges and burrs. Do not use such stems, but replace them instead. If you have no choice, remove these sharp edges or burrs on your own. Replace the handlebars of an existing stem, also check the handlebars after removal. Notches in the clamping area indicate defective processing of the stem in these areas. If you fit a new stem on a full carbon fork, check the steerer tube. Ask your STEVENS dealer in case you have the slightest doubt and replace, if necessary, the damaged part. Your safety comes first.



Make sure the clamping areas are absolutely free of grease, especially when the clamping surfaces are made of carbon.

- Slide the stem onto the fork steerer tube. It should fit snugly onto the fork. Do not fit stems which have play on the steerer tube. Use special carbon assembly paste to increase the clamping force.

Mount your new carbon handlebars and make sure it is accurately centred in the stem. The handlebars should slide easily into the stem clamp. There should be no play.



- Tighten the greased bolts of the stem faceplate with your fingers by a few turns. Tighten the bolts until the clamping slots between the stem body and the faceplate are identical in width in the top and in the bottom area.
- Tighten the fixing bolts alternately and in small increments to the minimum limit of the recommended torque settings by using a torque wrench. In the case of stems with four-bolt clamping, be sure to tighten the bolts in a cross pattern. Check the reliable fit as described in the operating instructions. In case the handlebars and the stem are still not tight enough, increase the torque value until you have reached the maximum torque value.





Check the reliable fit once again as described in the operating instructions. If a tight clamping of the handlebars in the stem or of the stem on the fork cannot be achieved, the handlebars and the stem or the stem and the fork are not compatible. Replace the stem by a suitable model.



Note:

Be sure to read the operating instructions of the brake lever/shifter manufacturer on the STEVENS CD-ROM before mounting.



Danger:

Do not exceed the maximum torque values specified by the stem, handlebars or fork manufacturers! Check the torque values of all bolts after the first 100 to 300 km (60 to 180 miles) and subsequently every 1,500 km (900 miles).

9.4. Carbon Seat Posts

Seat posts made of carbon are only designed for cross-country and marathon mountain bikes, as well as for the respective intended use.



- Check the shift/brake levers or the brake levers for burrs and sharp edges in the clamping areas. Avoid rotatory movements during mounting in general to avoid scratches.
- After you have found the correct position of the brake lever/shifter units, tighten the clamping bolts to the minimum value of the recommended torque value. In case the brake lever/shifter units are still not tight enough, increase the torque value until you have reached the maximum torque value specified by the component manufacturer.

Insert carbon seat posts only in frames with suitable seat post clamping. Special seat post clampings reduce the forces occurring at the clamping slot. Clamping areas with two or more clamping slots are perfect. They provide an even spreading of the clamping forces, reduce the occurring pressure and hence the risk of breakage.

9.4.1. Mounting the Seat Post

Make sure your new seat post has the same diameter as the seat tube of your frame. You should be able to insert the seat post easily into the frame without pressing or turning. A mismatch between frame and seat post can cause failure of the seat post.

Before mounting the seat post to the frame, make sure the seat tube is absolutely free of lubricants, sharp edges and burrs. Clean and deburr the seat tube, if necessary.



Make sure not to overtighten the binder bolt of the seat post clamp. Overtightening may cause a seat post failure, resulting in a crash and/or injury of the rider. Use special carbon assembly paste to increase the clamping force.



Danger:

Even a slight mismatch between seat post and seat tube diameter or oil and grease in the seat tube can lead to a rupture of the carbon seat post. This can result in an accident or injury to the rider. Use special carbon assembly paste to increase the clamping force.



Danger:

The minimum insertion depth of your seat post in the frame is 100 mm. Never ride your bicycle if the marking (MIN, MAX, STOPP, END or the like) of the seat post is visible.



10. Suspension Forks

There is a clear trend in bicycle technology towards greater riding comfort and safer handling. For this reason most mountain, trekking and city bikes are fitted with suspension forks. The suspension fork gives you better control of your bicycle when riding cross-country or on rough road surfaces. It noticeably reduces the strain on you and your bike caused by mechanical shocks. While there are various designs on the market, most forks belong to the category of telescopic forks, which function similarly to the spring elements commonly used on motorbikes.

10.1. Functioning

When the front wheel receives an impulse, the lower fork tubes (also referred to as lower legs) are forced upwards. The lower fork tubes travel on thinner upper fork tubes which are fixed to the fork crown by means of a bolted connection or a glued or compression joint. The fork retracts as a spring inside is compressed. The spring allows for the fork to extend again and assume its original position. An undamped spring would instantly extend again, giving a very uncomfortable ride. The fork is equipped with an oscillation damper which prevents the fork from springing back uncontrolled and provides a smooth return travel.

The telescopic forks differ in their spring elements and in the type of damping. For elasticity these forks are provided with steel or titanium springs, special types of plastic (also referred to as elastomers) or sealed air compartments or combinations of these options. The damping is usually done by oil or by the self-damping properties of the elastomers. Some models are equipped instead with friction or air damping elements.



Caution:

Many simple forks do not have a sophisticated damping system and are not comparable to high-quality suspension forks in terms of the riding behaviour.



10.2. Adjusting Suspension Forks

To work perfectly, the fork has to be adjusted to the weight of the rider and the intended use.

Adjusting the fork to your needs is easy, if you use a simple trick.

- Start adjusting the fork with the spring preload being completely turned off and with the lowest damping step.
- Slip a cable tie onto the stanchion tube so that it can still shift easily along the tube.

- When you sit on your bicycle, the fork should yield in general, depending on the suspension travel by approx. 10 to 25 % of the maximum suspension travel. If this is not the case, you have to change the spring preload. If you cannot mount a cable tie above the stanchion tube due to a bellow, ask a helper to measure in unloaded condition from the upper edge of the fork crown to the ground. Sit on your bicycle and measure once again.
- Ride your bicycle over different kinds of surface and check afterwards how much of the fork's travel was used. If the cable tie has only moved a few millimetres, your fork is in too rigid adjustment; check whether the preload of the springs has been turned off completely and have the springs replaced, if necessary.
- If the cable tie has moved along the entire travel range or if you can hear the fork bottom out, the spring is too flexible. Increase the spring preload first and increase the pressure subsequently. If the behaviour has not improved, have the springs replaced by an expert.
- If the spring adjustment meets your wishes, start optimizing the damping. Approach in quarter or half turns and observe the speed with which the fork rebounds.

If the damping is too low you feel as if the bicycle wants to throw you off, as the return travel springs back uncontrolled. The more you close the damping, the slower the spring rebounds, the smaller is the oscillation effect. A too hard damping makes the fork compress with shocks in quick succession, as it can no longer rebound quickly enough.

The different suspension forks of different manufacturers differ a lot in parts. Make sure you have received the fork instructions together with the bicycle from your STEVENS dealer. If necessary, download the instructions and further information on the following websites on the internet:

www.sram.com
www.srsuntour-cycling.com
www.ridefox.com
www.toxoholics.de



Note:

Almost all fork manufacturers include well-written operating instructions with their deliveries. You find these instructions on the STEVENS CD-ROM. Be sure to read these carefully before changing any settings or doing any maintenance work on your fork.



Note:

Adjusting a suspension fork accurately takes quite long and is a very delicate job. Be sure to read in any case the operating instructions of the manufacturer on the STEVENS CD-ROM. If you are in doubt, contact your STEVENS dealer.



Note:

If you cannot mount a cable tie over your stanchion tube, you need someone to ride with you. He can observe the behaviour of the fork during the ride and give useful tips for the adjustment.





Danger:

Before and after the adjustment check the tight fit of the bolted connection in the centre in the top area of the stanchion tubes. The adjusting mechanism of almost all forks runs through this bolt. It could come loose during adjustment!



Danger:

Do not turn any screws in the vague hope of adjusting them somehow. You could release the fastening mechanism, thus causing an accident. All manufacturers normally mark adjustment devices with a scale or "+" and "-" signs.

10.3. Adjusting the Suspension Travel of Suspension Forks

Some suspension forks have a system to change the suspension travel and/or to block the system (lockout), that is activated by a button or lever. Depending on the manufacturer the operation differs slightly.

10.4. Maintenance

Suspension forks are comparatively sophisticated components and require a considerable amount of maintenance and care. This has led almost all suspension fork manufacturers to establish service centres where customers can have their forks thoroughly checked and overhauled at regular intervals. The following routines are essential for suspension fork maintenance:

- Whatever type of fork you have, make sure the sliding surfaces of the upper fork tubes are absolutely clean. Clean the fork with water and a soft sponge after every ride. Apply a thin layer of suspension fork or hydraulic oil on the lower legs after cleaning.



Danger: Suspension forks are of sophisticated design. The maintenance routines and above all the disassembly of the fork are jobs best left to your STEVENS dealer.



Note: Check the functioning of the fork at regular intervals. Stand over your bicycle and press the fork downwards in jerks with your body weight. The suspension fork must not bottom out. Observe the amount of time it takes for the fork to rebound. It should take less time than the compression. If you are in doubt about the proper functioning of your fork, contact your STEVENS dealer.

- Make it a rule to check all bolted connections of your fork at regular intervals with a torque wrench.
- If your fork has an elastomer filling, you should regularly clean and lubricate the synthetic springs. Use non-corrosive resin-free grease only. Some fork manufacturers provide special greases for fork maintenance. Observe the manufacturer's specifications.
- Suspension forks with air springs have to be checked regularly for air pressure, as the air escapes over time.

Use a suitable torque wrench and observe the manufacturer's torque settings when checking the bolted connections on your suspension fork!



11. Full Suspension of the Mountain Bike Models

Full-suspension bikes are not only equipped with a suspension fork but also with a movable rear frame which is sprung and shock damped by a suspension strut. Depending on the system the rear shock has one or more suspension axes with at least two bearings each.

Rear shocks work in general with a titanium coil, steel coil or air spring. Damping is usually controlled by the use of oil.



11.1. What to Bear in Mind When Adjusting the Saddle

Full-suspension mountain bikes yield a little when the rider sits on the saddle. If you have trouble sitting, try lowering the saddle nose a little relative to the usual position.

11.2. Adjusting to the Rider and the Riding Style

Rear shocks on STEVENS bicycles work with air-spring systems. Air-spring elements can be adjusted to the weight the seating position of the rider as well as to the desired spring characteristics. When your bicycle has an air-spring element, the suspension strut of your bicycle must be inflated before your first ride.

In doing so, please note some simple rules. The suspension strut of the rear swing arm should retract slightly under the rider's weight to allow for a little sag. When the rear wheel passes over a hole, the spring extends and the suspension mechanism smoothenes the uneven movement. If the spring rate or the air pressure is set too high, this effect is lost as the wheel will already be fully extended. This means the loss of an important feature of safety and comfort.

The suspension strut must be designed and adjusted in a way that it doesn't bottom out. An air pressure is sensible and usually also clearly hearable by the hard shocks caused by the sudden complete compression of the rear shock. If the rear shock frequently bottoms out, it will sustain damage in the long term.

The suspension strut damping is controlled by valves inside which are designed to modify the flow rate of the oil and hence the speed with which the suspension strut moves in and out. In this way it is possible to optimise the response of your bicycle to obstacles.

Furthermore, any oscillatory movement of the rear frame while pedalling can be reduced. For long uphill rides involving hard pedalling in sitting it may be advisable to close, i.e. to lock the damping almost completely. On the other hand, for downhill rides on uneven ground it may be better to open the damping system more or less completely.



Note:

Full-suspension bikes have a markedly greater ground clearance than bikes without suspension. If the saddle is adjusted to its proper height, you will not be able to reach the floor with your feet. Set the saddle a little lower to begin with and practise getting on and off the saddle.



Adjusting the suspension is a delicate job, as even a small change on the adjuster can have a big effect. Try to approach the optimal adjustment gradually in steps or as a maximum in quarter turn.

11.2.1. Adjusting the Spring Rate

Cross-country and marathon racers usually run less sag than more comfort loving freeriders or downhillers who often ride over rough terrain. For cross-country and marathon riding the rear shock should yield by about 10-25 % of its total travel, for enduro and freeriding by about 20-40 %.

For measuring use the rubber ring which is mainly positioned on the thinner suspension strut or mount a cable tie around the thinner tube of the suspension strut so that it slides easily along the strut without slipping all alone.

Put on the clothes you wear usually (including packed rucksack) and sit on the bicycle; adopt your usual riding position and lean against a sturdy object (wall etc.) so that you don't topple over. Slide the rubber ring/ cable tie against the dust wiper on the suspension strut and come off the bicycle to prevent that the rear frame doesn't compress any further.

The distance between the rubber ring/cable tie and the dust wiper is the sag. Compare it to the total stroke of the rear shock (manufacturer's specification) to find out whether the suspension has to be adjusted harder or softer.



Caution:

Do not exceed the maximum pressure noted on the rear shock or in the operating instructions of the rear shock manufacturer.



Caution:

Do not ride your bicycle, if the rear shock bottoms out. This could damage the rear shock itself as well as the frame.



Danger:

Full suspension frames are designed in a way to absorb shocks. If the rear shock is too rigid and jammed, the terrain induced shocks pass directly into the frame without any damping. The frame is normally not designed to withstand such undamped stresses. If your rear shock has a lockout mechanism, do not activate the lockout function when riding in rough terrain, but only when riding over smooth terrain (roads, field tracks).

The initial tension of most rear shocks with steel coil can be set to a limited degree by an adjusting ring. If this is impossible and you cannot adjust the designed sag, the steel coil must be replaced by a harder or softer model. When replacing any parts, be sure to only use parts that bear the appropriate mark and, to be on the safe side, original spare parts. Your STEVENS dealer will be pleased to help you.

In the case of air spring rear shocks the spring rate is set through the air pressure in the suspension strut. The pressure must be adjusted with a special high pressure pump with pressure indicator before your first ride and adapted later, if necessary, to changes of the rider's weight and/or additional load. Note the suitable setting values and check them in the following at regular intervals. Always observe the recommendations of the manufacturers and do not exceed the maximum air pressure in the suspension strut.

Go for a test ride every time you made a change. Ride your bicycle on different kinds of surface and check the travel of the rubber ring/cable tie afterwards. The distance to the wiper is the maximum rear shock stroke you have used. If the rubber ring/cable tie has moved a few millimetres only, the setting of your rear shock is too hard. Reduce the air pressure or in the case of rear shocks with steel coil the spring preload. If this does not help, have the spring replaced.

If the rubber ring/cable tie has moved over the entire length of the tube or if you can hear the rear shock repeatedly bottom out in the terrain, the suspension is set too soft. In this case the spring preload/pressure must be increased. If the adjustment range of the steel coil is too small, have the coil replaced by your STEVENS dealer.

Some suspension elements have a negative air chamber improving the response behaviour. Increase the pressure in this chamber also according to the instructions of the manufacturer.



Rear shocks with adjustable damping are fitted with an adjusting knob that is (mainly) red to slow down or accelerate the rebound movement. Sometimes a second knob (mainly blue) is available, which is to adjust the speed of the compression movement and/or to activate the lockout function.

Start the adjusting with a completely open damping (rebound and compression damping "-"). Ride over an obstacle (e.g. a kerb) and turn the rebound damping in small steps towards the "+" setting. You have found the proper rebound setting when the rear frame does not cycles more than once.



Note:

Rear shock manufacturers normally include comprehensible instructions with their deliveries. You find these instructions on the STEVENS CD-ROM. Be sure to read them carefully before changing any settings or doing any maintenance work.



Adjusting the compression damping requires a great deal of skill and experience. A weaker damping provides a good response behaviour. Under certain circumstances this may result in a too strong compression or bobbing of the rear frame when cycling out of the saddle over obstacles, such as steps. A stronger damping makes the suspension harder, thus reducing the riding comfort. Always check a modified adjustment by doing a test ride in the terrain.

If you are not confident enough to adjust the damping on your own or in case you face any problems, contact your STEVENS dealer and observe the respective instructions in the operating instructions of the rear shock manufacturer on the STEVENS CD-ROM.

The different rear shocks of different manufacturers differ a lot in parts. Make sure you have received the rear shock instructions together with the bicycle from your STEVENS dealer. If necessary, download the instructions and further information on the following websites on the internet:

www.ridefox.com
www.toxoholics.de
www.sram.com



Caution:

A too strong damping of the rear frame can result in a sluggish rebound movement with a rear shock that will not recover when exposed to a quick series of impacts. Risk of falling!



Danger:

Do not turn any screws in the vague hope of adjusting them somehow. You could release the fastening mechanism, thus causing an accident. All manufacturers normally mark adjustment devices with a scale or with "+" signs (for stronger damping/harder suspension) and with "-" signs.

11.3. How to Block the Rear Shock

Some rear shocks have a system to block suspension (lockout), which is activated by a button or a lever. Depending on the manufacturer the operation differs slightly. Make sure to release the blocking on uneven ground, as the frame or the rear shock may suffer damage.



11.4. Maintenance

The maintenance of the rear shock is in general limited to the careful cleaning of the bearings and the suspension strut. Do not use a steam jet or aggressive cleaning agents!

Check the air pressure of the rear shock at regular intervals. Take your bicycle for a test ride on different kinds of surface. If the rear shock bottoms out several times, the spring rate, i.e. the air pressure, has to be changed:

Check the bearing of the rear swing arm for lateral play or the bearing of the suspension strut for vertical play at regular intervals.

- To do this check take the bicycle by the saddle, lift it up and try to move the rear wheel to both sides. If necessary, ask a helper to keep hold of the front part of the frame.
- To check the suspension strut for play place the rear wheel gently down and lift it up again. Listen for any rattling noises.
- If there is any ask, ask your STEVENS dealer to repair it immediately.
- After a fall, check from the rear whether the suspension strut is still in alignment. The fastening points should be above one another. If necessary, ask your STEVENS dealer for advice.

In case there are any rattling noises, apply some spray oil in the area of the bearings and the suspension strut mounting. Check the suspension strut mountings at regular intervals (max. torque value 13 Nm).



Note:

Ask your STEVENS dealer to do the scheduled maintenance work at least once a year. They will check all essential components.



12. Things Worth Knowing about Bicycles and Cycling

12.1. Helmets

Cycling helmets are a must when riding a bicycle. Frequent counter-arguments, such as poor ventilation, high weight and awful designs can no longer be maintained with the latest helmets. Your STEVENS dealer has a wide range of stylish helmets in various sizes. Take your time when buying a helmet and wear the one you have chosen for while. A good helmet should fit accurately and should not hurt. Make sure that the helmet complies with the testing standards. But remember that even the safest helmet is useless unless it fits properly and is correctly adjusted and fastened.



Caution:

Do not overload your bicycle and observe the maximum load capacity of your racktime carrier.



Danger:

Luggage generally changes the riding characteristics of your bicycle and increases your stopping distance! Therefore, practise riding a loaded bicycle in a place free of traffic.

12.2. Transporting Luggage

There are various ways of carrying luggage on a bicycle. Your choice will primarily depend on the weight and volume of the luggage and on the bicycle you want to use. Mountain bikers or road racers prefer taking their luggage in a backpack. This influences the additional load of the riding characteristics less. There are however several ways of transporting luggage directly on the bicycle.

Some STEVENS bicycles are fitted with a racktime system carrier. This carrier is designed for a maximum additional load of 25 kg.

Bicycles with racktime carriers provide a fast and secure fastening for bags, baskets and further accessories by means of the Snapit-system. We recommend nevertheless that you carry luggage in stable pannier bags with a very low centre of gravity. For more information on the racktime system carrier, see the operating instructions of the manufacturer on the STEVENS CD-ROM as well as at www.racktime.com

When buying pannier bags, make sure they are watertight so that your belongings are protected and you will not have any unpleasant surprises after the first rain shower.

Another possibility of transporting luggage are handlebar bags. They often have snap buckles for quick mounting and removal. Handlebar bags are particularly suitable to carry valuable objects and photographic equipment with you.

Lowrider bags fitted at the front of the bicycle are mounted to the fork by means of special holders. They are an additional option for a long trip. Heavy luggage should be transported in these bags, where the effects on the riding behaviour are less important.



12.3. Accessories

There are lots of accessories on the market which are intended to provide more fun for cycling. Cycle computers are on top of the list. They measure riding and average speed, daily and annual mileage and riding time. High-end models indicate the highest speed, differences in altitude, pedalling cadence and many other things.

The most important accessories for a successful cycle tour are a tyre pump and a small tool kit. The tool kit should include two tyre levers, the most commonly used Allen keys, a spare tube, a tyre repair kit, your mobile phone, if necessary, and a little cash. In this way you will be well prepared in the event of a puncture or some other mishap.

Before buying any additional bells, horns or lighting accessories, inform yourself thoroughly whether they are permitted and tested and accordingly approved for use on public roads.

Additional battery/accumulator-operated lights have to be marked with the wavy line and the letter "K" (see chapter "Legal Requirements for Riding on Public Roads"). A rear view mirror provides better view to the rear. Make sure the fastening is non-vibrating, when buying a rear view mirror. Keep in mind to take a lock with you, as bicycles are stolen often. Your STEVENS dealer will be pleased to inform you about the different security levels of locks.



12.4. Bicycle Transport by Car

Nearly every car accessory dealer and car company offer carrier systems that allow the transport of a bicycle without disassembly. The usual design involves rails fixed to the roof of the car onto which the bicycles are fixed with clamps gripping the down tubes.

These systems are not suitable for light-weight aluminium frames or carbon frames.



Danger:

Do not buy a carrier on which the bicycle has to be mounted upside down, i.e. with the handlebars and saddle fixed face down to the carrier. This way of fastening the bicycle exposes handlebars, stem, saddle and seat post to extreme stress during transport. Risk of breakage!



Caution:

If you have a bicycle frame made of ovalized tubes or aero tubes (non-circular), do not clamp your bicycle with the usual clamps to the carrier system.



Caution:

Bear in mind that your car has a greater overall height with the bicycle on it. Measure the overall height and place a sign stating the height somewhere in the cockpit so that it can be easily seen.



Note:

Damage to carbon frames caused by clamping claws is excluded from warranty/guarantee.



Danger:

Retrofitted accessories, such as mudguards, disc or roller brakes, carrier systems etc., can impair the functioning of your bicycle. This can result in a fall. Always ask your STEVENS dealer for advice before mounting any kind of accessories to your bicycle.



Danger:

Remove the staples from the opened flaps of the cardboard carton. Otherwise you may hurt yourself or damage the bicycle. Strip off old address labels, as well. Fill the bottom with pieces of carton to prevent bulges or dents in case moisture will affect the cardboard.



Caution:

In case you pack your bicycle without mounting spacers in place of the removed wheels, the frame is at risk of being damaged.



Danger:

In case you do not mount the transport locks in place of the brakes, the brake is at risk of failing after transport.

The big advantage of rear carriers over roof carriers is that you do not have to lift up the bicycles so high to attach them.

- Whatever system you opt for, make sure it complies with the relevant safety standards of your country.
- Read the operating instructions and observe the maximum load capacity and recommended or prescribed driving speed.
- Please make sure the lights and the number plate of your car are not hidden from view. For some carriers a second exterior rear view mirror may be necessary.

12.5. Bicycle Transport in a Bicycle Case or in a Sturdy Bicycle Carton

To bring your bicycle safe to the destination by plane, you either need a special bicycle case or a bicycle carton which you can obtain from your STEVENS dealer. Please note that wider cardboard cartons are usually more suitable than narrow and high ones. The STEVENS bag is another option for a safe and comfortable bicycle transport.

What you need in any case are spacers which have to be inserted in the drop-outs in place of the wheels. You can get them from your bicycle dealer.

The following tips apply to bicycle cases as well as to cardboard cartons.

Unscrew the pedals. Note that the left pedal has a left-handed thread that has to be released clockwise. Pedals come off suddenly; therefore, use an offset wrench and position the tool in a way that the hand moves away from the pointed teeth when you start to unscrew the pedal.



Shift to the large chainring and the smallest sprocket. Open the quick-releases and remove the front wheel. Insert the spacers into the drop-outs of the fork. Slide the special transport lock between the brake pads in the brake calliper. Pull the brake levers and secure them with a rubber band. This prevents the entry of air into the system.

Remove the rear wheel and make sure to slide a spacer between the axle mounts (drop-outs) of the rear frame. After having mounted the spacers the chain should be tensioned. Fix this holder with cable ties or copper wire to the chainstays. Slide the special transport lock between the brake pads in the brake calliper. Pull the brake levers and secure them with a rubber band. This prevents the entry of air into the system.



Turn the crank in parallel to the chainstay and fix the pedal eye with wire to the chainstay. Fix the chain where it runs on the chainring and where it leaves it. This prevents the chain from coming off and causing damage. The sharp-edged chainring is padded.



Take hold of the rear derailleur with one hand so that it doesn't come off uncontrolled due to the spring tension. Release the bolt and dismount it. Protect the chainstay with air-cushioned foil or foam tubes, e.g. from warm water tubes. Fix the rear derailleur about in the centre to the protected stay.



Fabricate a sturdy holder for the bottom bracket case from cardboard carton or hard foam to protect the chainring or ask your bicycle dealer for help. You can also use two supports for the fork and the drop-outs.

Release the clamping bolts of the handlebars and the steerer tube on the stem by two to three turns.

Turn the now mobile stem by 90° relative to the fork so that the handlebars are in parallel to the direction of travel. Turn the handlebars, if necessary, downwards until its width has reduced to the minimum. Retighten the bolts slightly.



Things Worth Knowing about Bicycles and Cycling



Protect the entire frame with air-cushioned foil or foam tubes. Lift the frame carefully into the cardboard carton and place the bottom bracket on the support.

If the bicycle doesn't fit into the cardboard carton, you have to dismount the seat post, if necessary. Mark it with a pen. This will help you to find the proper height and alignment right away on the spot. Prepare a cardboard padding for the seat tube. It should fix the position of the frame and fill the space to the cover.

Slide a piece of sturdy cardboard over the long side into the bicycle carton to create a second compartment for the wheels. Remove the quick-releases from the hubs and pack the wheel with air-cushion foil. A rag over the sprockets keeps the packaging clean and can be used for bicycle care at a later date. Slide the wheels into the carton. The sprockets should show to the inside and be positioned in the area of the frame triangle, where they cannot cause any damage.



Pack the quick-releases, the pedals, the necessary tool, rags, chain oil and penetrating lubricant and a pocket knife and adhesive straps for re-closing into a box. Close the box and insert it into the bicycle carton in a way that it provides stiffness.



Use additional rags or air-cushion foil to protect the bicycle, if necessary.

Finish by marking "This side up" on the carton. Further options are markings, such as "Caution bicycle inside!".

12.6. Taking Children with You

The only possible and legal way of transporting children by bicycle is in special child seats or trailers. To mount a child seat to your STEVENS bicycle you need the racktime child seat adapter. It is suitable for all racktime system carriers with an overall top width of 120 mm and permitted for a maximum additional load of 12 kg. A child seat can be fastened to several bicycles, if fitted with a racktime child seat adapter.

Purchase DIN EN tested child seats only. Make sure the seat belts are fastened and the feet are fixed in special holders.

Cover the springs of your saddle, if available, to make sure that your child will not have the fingers pinched. Make sure the child you are taking with you wears a helmet and fasten the seat belt!

Child seats have a strong influence on the bicycle's riding characteristics. The weight of both the seat and the child will make the bicycle somewhat instable, i.e. it tends to wobble. Practise sitting in your bicycle and cycling! A critical moment is when you have just placed the child in the seat because this is when the danger of the bicycle toppling over is greatest. A good way to obviate this danger is to use a twin leg kickstand to keep the bicycle stable in standing.

Observe the permitted maximum load of the racktime carrier system. Do not exceed the permitted maximum load of the bicycle indicated by the manufacturer. (Also observe the bike card and the handover report as well as the operating instructions of the system carrier manufacturer on the STEVENS CD-ROM).

Another option to take children with you are special child trailers that are towed behind a bicycle. They usually provide place for up to two children.



Children can play in the trailer without the danger of toys falling out. Some models provide the option of mounting a sunshade or rain shield.

Trailers mainly affect the braking behaviour of your bicycle, but not the other riding characteristics. One drawback is the widths of the child trailer which occupies far more width than the bicycle would alone. In addition, the trailers are flat; they are therefore easily overlooked. Therefore protect the trailer by mounting a long pole with coloured pennant to increase visibility and practise riding with the trailer without passengers. A rear view mirror helps you to observe the trailer and the passengers during the ride.

The trailer should be fitted additionally with all the reflectors that are prescribed for riding on public roads, just like your bicycle. If you use it in the dark, illuminate the rear end of the trailer with a battery/accumulator-powered lamp. Inform yourself about the legal regulations relating to the lighting of trailers.

Make sure the child you are taking with you wears a helmet. A trailer is an insufficient protection in the event of an accident!



Note: Please note the permitted trailer load of your bicycle. Trailers are not permitted for all bicycles (also see chapter "Before Your First Ride").



Caution:

Child seats can only be mounted to models of suitable design. When mounting a child seat make sure not to impair the functioning of brake and shifting cables. Mounting child seats to the seat post is not permitted.



Danger:

Always secure the child with the seat belt, as uncontrolled movements inside the trailer can make it topple over.



Note:

Make sure the child seat you have mounted has holders for the feet of the child. The child should not be older than 7 years, the cyclist must be 16 years old at least.



Danger:

Make sure the child always wears a properly fitting cycling helmet and well visible, i.e. bright, clothing. It is also advisable to wear reflector stripes to increase visibility.



Danger:

Children can be vain. Therefore, buy a tested cycling helmet that the child feels happy with. Take your child with you to make sure you buy one which is comfortable and fits correctly. This will increase the chances that the helmet is actually worn, which one day might be a life-saver.

13. Kids' Bicycles

Children are among the most vulnerable road user groups, not only because of their lack of experience and practice, but also for the simple reason that they are smaller and may therefore have difficulties over-seeing things and be easily overlooked by other road users.

If you want your child to use his/her bicycle on the road, you should be willing to invest time in road safety instruction and help him/her improve his/her riding skills. Children are not as observant as adults, and you should therefore get into the routine of checking the bicycle and performing adjustments and maintenance as necessary. In case of inquiries ask your STEVENS dealer for advice. Bear in mind that it is your responsibility to supervise your child on his/her first rides and do not overchallenge your child!

Inform yourself about the traffic rules in your country. They vary from country to country. For example, in Germany, children must use the pavement until they are eight years old and they are permitted to do so until the age of ten.

It is essential that your child has good control of his/her bicycle before riding on his/her own. As a first step in this direction we recommend that you give your child a scooter or a pedalless bicycle so that he/she can train his/her sense of balance.

This being accomplished you will need to make your child familiar with the functioning of the brakes before you let him/her sit on the bicycle. Find a place away from the road, ideally a backyard or park, where you can practise braking and shifting gears with your child under your supervision.



Once your child has progressed to a point where he/she can ride in traffic, teach him/her how to cross kerbs and railway tracks, i.e. to cross these obstacles, if possible, at right angle. Your child should also learn to look ahead and back for any danger before taking this kind of obstacle.

Set a good example when it comes to riding on cycle lanes. It is also advisable to let your child take part in road safety lessons offered at schools or by local clubs and associations.

Adjusting the bicycle to the bodily proportions of a child is even more important than in the case of an adult. When determining the saddle height you should find a compromise that allows the child to reach the ground with both feet when sitting in the saddle while at the same time giving them enough space for pedalling.

The saddle should be set to a height from which your child can just reach the pedal in its lowest position with his/her heel.

In a control, the knee should be slightly bent, when the ball of the big toe is exactly above the pedal centre.



Check during the control that the hips of the child remain horizontal. Check finally whether the child still reaches the ground. If not, you should lower the saddle a little. Due to the limited field of view, the seating position of the child should be as upright as possible.

Handlebars that are too far away from the saddle can also lead to the fact that the child is less relaxed during cycling. The saddle can therefore be shifted. For more information on how to adjust the seat post and the saddle, see chapter "Adjusting the Bicycle to the Rider".

Check the tight fit once again by trying to tilt the saddle.

Check as a next step whether the brake lever is within easy reach for the child. If it is not, adjust the brake lever as described in chapter "Adjusting the Bicycle to the Rider".



It is important to tell your child when he/her practises braking that in wet conditions the brake performance is less effective and the tyre grip reduced and that he/she should therefore ride more slowly.

Get into the habit of doing the checks as described in chapter "Before Every Ride" together with your child. In this way, your child will learn to handle the material properly and you will be able to detect any defects that have developed during use. Encourage your child to tell you, if anything should not be working properly on his/her bicycle. Repair the defect immediately or take the bicycle to your bicycle dealer for repair, if you are in doubt.



Caution:

With children who are still growing it is advisable to check the saddle height every three months.



14. Warranty and Guarantee for STEVENS Bicycles

14.1. Warranty



Note:

The coating/paint of frames and forks is subject to particular consideration, i.e. the coating is, by nature, exposed to stress during use and can wear down or be affected by minor damage. This type of wear or damage as a result of mechanical stress (e.g. scratches due to rough contact with other objects) is not covered by the terms of warranty.



Note:

The law referring to full warranty rights is only valid in the countries where the law has been ratified according to the renewed European regulations. Please inform yourself about the situation in your country.

Your STEVENS bicycle was manufactured with care. Normally it is delivered to you by your STEVENS dealer fully mounted. As direct purchaser you have full warranty rights within the first two years after purchase. Please contact your STEVENS dealer in the event of defects. To ensure a smooth handling of your claim, it is necessary to present your receipt, your bike card, the handover report and the stamped service reports. Therefore, please keep these documents in a safe place.

To ensure a long service life and good durability of your STEVENS bicycle, use it only for its intended purpose (see chapter "Before Your First Ride"). Please also observe the permissible load specifications as specified there and in the bike card. Be sure to strictly follow the mounting instructions of the manufacturers (above all the tightening torques of the bolts) as well as the prescribed maintenance schedule. Please observe the checks and routines that are listed in the present user manual and the manuals supplied or the replacement of safety-relevant components, such as handlebars, brakes etc, if necessary.

14.2. A Note on Wear

Some components of your STEVENS bicycle are subject to wear due to their function. The rate of wear will depend on care and maintenance and the way you use your pedelec (mileage, riding in the rain, dirt, salt etc.). Bicycles that are often left standing in the open may also be subject to increased wear through weathering.

These wearing parts require regular care and maintenance. Nevertheless, sooner or later they will reach the end of their service life, depending on conditions and intensity of use. These components must be replaced once they have reached their limit of wear:

- a. Drive chain
- b. Brake pads
- c. Brake fluid (DOT)
- d. Brake discs/rotors
- e. Brake cables and housings
- f. Seals of suspension elements
- g. Grip coverings or bar tape
- h. Bowden cables and housings
- i. Chainrings
- j. Tyre
- k. Sprockets
- l. Saddle covering
- m. Pulley wheels
- n. Lubricants

o. The pads of rim brakes are subject to wear due to their function. If you use your bicycle for competitive cycling or in hilly terrain, the brake pads may have to be replaced quite frequently. Check your brake pads regularly and have them replaced by your STEVENS dealer, if necessary.

p. Rims of rim brakes

Braking causes wear not only to the brake pads, but also to the rims. Therefore, check your rims regularly, e.g. when inflating the tyres. Rims with wear indicators have rings or a gap that come into view when the rim reaches its limit of wear. There are some models where the wear indicators disappear, when the rim thickness has reached a critical point. Observe the specifications marked on the rim. Ask your STEVENS dealer to examine the remaining thickness of the rims at the latest when you are through your second set of brake pads. Rim walls that become deformed or show hair cracks when the tyre pressure is increased have reached the end of their service life. The rim must be repaired.

q. Lighting set and reflectors

The lighting is essential for your safety on the road, especially at night. Check the function and condition of the reflectors before every ride.

14.3. Warranty Rules of STEVENS Vertriebs GmbH

STEVENS Vertriebs GmbH guarantees the quality and durability of the STEVENS bicycles. A STEVENS bicycle is a bicycle suitable for its intended purpose which we have assembled using components and branded accessories of well renowned manufacturers. Should defects occur to the bicycle or one of its parts during the warranty period, we will, at our choice, repair or replace it, with you (as the first buyer) having to tolerate minor deviations in model, dimensions and colour. Suspension forks, Shimano components and other branded accessories are not handled through STEVENS but through the part manufacturers' national distributors. For any complaints about goods of other brands, even if they have been sold and supplied by us, please first contact the distributor, or the manufacturer directly, and use their forms.

On the manufacturers' websites, you can usually also find manuals and technical instructions as well as contacts for further questions. In all cases, the specialist STEVENS dealer is the person to contact and accepts end-users' enquiries.

From the date of the sale to the first buyer, the warranty periods will be

- Aluminium frames and forks* 5 years
- Carbon frames and forks* 5 years
- Full suspension frames* 5 years
- Other components 2 years



Note:

The rights of the end-user/customer from the warranty remain unaffected by the present guarantee.



Note:

* The coating/paint of frames and forks is subject to particular consideration, i.e. the coating is, by nature, exposed to stress during use and can wear down or be affected by minor damage. This type of wear or damage as a result of mechanical stress (e.g. scratches due to rough contact with other objects) is not covered by the terms of warranty.



Danger:

Ask your STEVENS dealer to check your STEVENS bicycle after a fall. If you are in doubt, replace at least handlebars and stem to be on the safe side.



Note:

If you use your STEVENS bicycle for riding on public roads, it has to be equipped according to the regulations of your country. Pay particular attention to your bicycle being equipped with the prescribed lighting set and reflectors. Not all STEVENS bicycles are supplied together with all necessary attachment parts.

Please note the following rules for an easy remedy in the event of possible defects: The STEVENS warranty, which is not transferable, applies only to the first buyer and only if the customer's sales receipt and a copy of the completed bike card and delivery receipt are presented and if the compliance with, and observance of, our above-mentioned notes contained in the manual (No. 1-13) / the operating instructions as well as the regular inspections carried out by dealers are proved (chapter "Service and Maintenance Schedule").

The warranty does not cover any labour or transportation costs as well as consequential costs caused by defects. Proper use is a prerequisite for services under this warranty.

Damage caused by wear and tear, neglect (lack of care and maintenance), falls, overloading, improper assembly (failure to observe the manufacturers' assembly instructions) or care as well as changes to the STEVENS bicycle (addition or alteration of additional components) shall be excluded. In the case of jumps or any other overloading, as well as any violation of our recommendations or those of our authorized dealers, no claims under this warranty exist.

Obvious defects of the products shall be reported within 8 days from delivery; any concealed damage shall be reported immediately after it becomes known, but within the warranty period.

In the case of any **unjustified returns**, we will charge a lump sum for expenses. Our warranty, which is restricted to the territory of your country, does not take into account any further claims against us, particularly any claims for price reduction or damages. The performance of services under this warranty does not mean any extension or recommencement of the warranty period.

14.3.1. Special Notes, Notes on Safety

In view of a long lifetime, a long durability of the components and any claims being made under this warranty, the manufacturers' assembly instructions (including, without limitation, torques for screws) as well as the prescribed maintenance intervals must be observed precisely. Some examples: Rear shock fixing screws which are too tight impose a load on the frame and may cause consequential damage.

If you use your STEVENS bicycle for riding on public roads, it has to be equipped according to the regulations of your country. Pay particular attention to your bicycle being equipped with the prescribed lighting set and reflectors. Ask a bicycle specialist shop of your trust to inform you about the regulations in force in your country. The requirements of the CEN/DIN standards specific to the type of bicycle and the legislation in your country shall be taken into account by the dealer/fitter. Not all STEVENS bicycles are supplied together with all attachment parts.

15. General Notes on Care and Servicing

The bicycle you have purchased is a product of high quality and technology. Your STEVENS dealer will have assembled and adjusted your bicycle ready for use when you come to collect it. Nevertheless, as with other types of vehicles, you should still see to it regularly and have your STEVENS dealer do the scheduled maintenance work. This is the only way to ensure that all components function safely and reliably for many miles. This will ensure fun and safety for many years.

15.1. Cleaning and Caring for the Bicycle

Dried sweat, dirt and salt from riding during the winter or in sea air can harm your bicycle. You should therefore make a habit of regularly cleaning all the components of your bicycle.

The easiest way to remove dirt and minerals is by using a steam cleaner. This cleaning method is quick, but it entails serious drawbacks. As the water is ejected at high pressure in a narrowly focussed jet, it may pass through seals and penetrate bearings. This leads to the dilution of lubricants and consequently to greater friction. This destroys and impairs the functioning of the bearing races in the long term. Steam jet treatment also tends to abrade stickers.

A much more gentle way of cleaning your bicycle is with a soft water jet and/or with a bucket of water and a sponge or large brush. Cleaning your bicycle by hand has another positive side-effect in that it enables you to discover defects in the paint or worn or defective components at an early stage. After drying your bicycle you should polish its coating and metal surfaces with hard wax.

Apply the hard wax also to spokes, hubs, etc. Use a hand-held atomizer for parts with small surfaces. Inspect the chain after you have finished cleaning and grease it, if necessary (see chapter "Chain Maintenance").

15.2. Safekeeping and Storing the Bicycle

If you regularly look after your bicycle during the season, you will not need to take any special precautions when storing it for a short time, apart from securing it against theft. It is advisable to store your bicycle in a dry and airy place. There are some things to bear in mind when putting your bicycle away for the winter:

- Inflated inner tubes tend to gradually lose air when the bike is not used for a long time. If your bicycle is left standing on flat tyres for an extended period, this can cause damage to the structure of the tyres. It is therefore better to hang the wheels or the entire bicycle or to check the tyre pressure regularly.
- Clean your bicycle and protect it against corrosion as described above.
- Remove the seat post and allow for any moisture that may have entered to dry away. Spray a little finely atomized oil into the seat tube. Caution: Do not grease carbon parts!
- Store your bicycle in a dry place.
- Shift the gear to the smallest chainring and the smallest sprocket. This relaxes the cables and springs as much as possible.



Danger:

While cleaning, look for cracks, scratches, dents, as well as bent or discoloured material. If you are in doubt, contact your STEVENS dealer. Have defective components replaced immediately and touch up paint defects.



Danger:

Keep brake pads and rim sides free of grease or oil!



Caution:

Do not clean your bicycle with a strong water or steam jet from a short distance.



16. Service and Maintenance Schedule

It is advisable to have your STEVENS bicycle serviced regularly after the bedding-in period. The schedule given in the table below is a rough guide for cyclists who ride their bicycle between 1,000 and 2,000 km (600 to 1,200 miles) or 50 to 100 hours of use a year.

If you consistently ride more or if you ride a great deal on poor road surfaces, the maintenance periods will shorten accordingly.

Component	What to do	Before Every Ride	Monthly	Annually	Others
Lighting	Check function	x			
Tyres	Check pressure	x			
	Check tread and side walls		x		
Brakes (rim brakes)	Check lever travel, wear of brake pads, position of pads relative to rim; test brakes in stationary	x			
Brakes (drum/roller)	Lever travel, test brakes in stationary	x			
Brakes, brake pads (rim brakes)	Clean		x		
Brake cables, pads hoses	Visual inspection		x		
Brakes (disc brakes)	Check lever travel, wear of brake pads, check seals, test brakes in stationary	x			
	Replace liquid (Dot-liquids)			•	
Suspension fork	Check and retighten bolts, if necessary			•	
	All-inclusive service (change oil)			•	
Rims (of rim brakes)	Check thickness, replace if necessary				• after 2nd set of brake pads at the latest
Fork (rigid)	Check and replace, if necessary				• at least every 2 years
Bottom bracket	Check for bearing play		x		
	Dismount and regrease (cups)			•	
Chain	Check and grease, if necessary	x			
	Check wear, replace, if necessary Derailleur Gears				• after 1,000 km (600 miles) or 50 hours of use



Note:

For your own safety, bring your STEVENS bicycle to your STEVENS dealer for its first service after 100 to 300 kilometres (60 to 180 miles), 5 to 15 hours of initial use or three to six weeks, at the very latest, however, after three months.

Component	What to do	Before Every Ride	Monthly	Annually	Others
Crank	Check and retighten, if necessary		x		
Painted/anodised/carbon surfaces	Polish				x at least every 6 months
Wheels/spokes	Check for trueness and tension		x		
	True or retighten				• if necessary
Handlebars and stem (made of aluminium and carbon)	Check and replace, if necessary				• every 2 years at the latest
Headset	Check for bearing play		x		
	Regrease			•	
Metal surfaces	Polish (except: rim sides of rim brakes, rotors)				x at least every 6 months
Hubs	Check for bearing play		x		
	Regrease			•	
Pedals (all)	Check for bearing play		x		
Pedals (clipless)	Clean and grease locking mechanism		x		
Seat post/stem	Check bolts		x		
	Disassemble and regrease Carbon: new assembly paste (no grease!)			•	
Front/rear derailleur	Clean and grease		x		
Quick-releases/thru axles	Check seat	x			
Bolts and nuts (multi-speed hubs, mudguards etc.)	Check and retighten, if necessary		x		
Valves	Check seat	x			
Cables gears/brakes	Dismount and regrease			•	



If you have a certain degree of mechanical skills, experience and suitable tools, such as a torque wrench, you should be able to do the checks marked **x** by yourself. If you will come across any defects, take appropriate measures without delay. If you are in doubt or if you have any questions, contact your STEVENS dealer.

Jobs marked • are best left to your STEVENS dealer.



Caution:

When working on your bicycle restrict yourself to jobs for which you are equipped and have the necessary knowledge.



17. Recommended Torque Settings

All bolted connections of the bicycle components have to be tightened carefully and checked regularly to ensure the safe and reliable operation of the STEVENS bicycle. This is best done with a torque wrench that disengages at the desired torque value or a click-type torque wrench.

Tighten carefully by approaching the prescribed maximum torque value in small steps (0.5 Nm increments) and check in between the proper fit of the component.

Where no maximum torque setting is given start with 2 Nm. Observe the indicated values and observe the values on the components and/or in the operating instructions of the component manufacturers on the enclosed STEVENS CD-ROM.

Component	Bolted connections	Shimano ¹ (Nm)	Tektro ² (Nm)	TRP ³ (Nm)
Rear derailleur	Mount (on frame/derailleur hanger)	8 - 10		
	Cable clamp	5 - 7		
	Pulley wheels	3 - 4		
Front derailleur	Mount on frame	5 - 7		
	Cable clamp	5 - 7		
Shift levers	Mount on handlebars	5		
	Hole covering	0.3 - 0.5		
Brake lever unit	Mount on handlebars	6 - 8	6 - 8	
	Time trial brake lever		5 - 7	
Hub	Quick-release lever	5 - 7.5		
	Locknut for bearing adjustment of quick-release hubs	10 - 25		
	Sprocket cluster lock ring	29 - 49		
Internal gear hub	Hub axle nut	30 - 45		
Crank	Crank mount (grease-free square-head)	35 - 50		
	Crank mount (Shimano Octalink)	35 - 50		
	Crank mount (Shimano Hollowtech II)	12 - 15		
	Chainring mount	8 - 11		



Danger:

Never exceed the maximum tightening torque indicated by the manufacturer!

Component	Bolted connections	Shimano ¹ (Nm)	Tektro ² (Nm)	TRP ³ (Nm)
Sealed cartridge bearing	Shell (square-head)	49 - 69		
	Shell (Shimano Hollowtech II, SRAM Gigapipe)	35 - 50		
	Octalink	50 - 70		
Pedal	Pedal axle	35		
Shoe	Cleat	5 - 6		
	Spike	4		
Brake (V-brake)	Cable clamp	6 - 8	6 - 8	6 - 8
	Brake shoe mount	6 - 8	6 - 8	6 - 8
	Brake pad fixing	1 - 2		
	Brake boss frame/fork		8 - 10	



¹ www.shimano.com ² www.tekro.com ³ www.trpbrakes.com

These values are reference values of the above-mentioned component manufacturers. Observe the values in the instructions of the component manufacturers on the STEVENS CD-ROM. These values do not apply to the components of other manufacturers.



Note:

Due to the unmanageable number of components on the market, STEVENS is not in a position to foresee every product that will be replaced or newly assembled by third parties. Therefore STEVENS denies any liability for such kind of additions or modifications with regard to compatibility, torque values etc. Whoever assembles or modifies the bicycle shall ensure that the bicycle was assembled according to the state-of-the-art in science and technology.



Note:

Some components have the maximum permissible torque values printed on them. Use a torque wrench and never exceed the maximum torque value! If you are in doubt or if you have any questions, contact your STEVENS dealer.



17.1. Recommended Torque Settings for Disc Brakes and Hydraulic Rim Brakes

Component	Shimano ¹ (Nm)	Tektro ² (Nm)	TRP ³ (Nm)	Magura HS ⁴ (Nm)
Brake calliper mount on frame/fork	6 - 8	6 - 8	6 - 8	6
Brake lever unit on handlebars	6 - 8	5 - 7		4
Union screws of cable at grip and normal cable at brake calliper	5 - 7			4
Brake cable connector at brake calliper (disc tube cable)	5 - 7			
Expansion tank cap	0.3 – 0.5			
Bleeding device brake calliper	4 - 6	4 - 6		
Bleeding device brake lever		2 - 4		
Brake rotor fixing (6-holes)	4	4 - 6	6 - 8	
Brake rotor fixing (centerlock)	40			
Hose (union nut) direct connection				4
Slave cylinder (bleeder screw)				4
Brake pad retainer at brake calliper		3 - 5		
Cable clamp at brake calliper			4 - 6	

¹ www.shimano.com ² www.tektro.com ³ www.trpbrakes.com ⁴ www.magura.com

These values are reference values of the above-mentioned component manufacturers. Observe the values in the instructions of the component manufacturers on the STEVENS CD-ROM. These values do not apply to the components of other manufacturers.

17.2. Maximum Torque Settings of Standard Bolts

Limit values of the torque settings in newton metres (Nm) for setscrews with metric threads and head contact in accordance with DIN 912, 931, 934. The bolts are greased (friction coefficient = 0.125):

Dimension	Bolt quality (imprinted on the head)		
	8.8	10.2	12.9
M4	2.7	3.8	4.6
M5	5.5	8	9.5
M6	9.5	13	16
M8	23	32	39
M10	46	64	77

Source: VDI guideline 2230

Please observe the minimum screw-in depth. In the case of solid (hard) aluminium alloys this depth is at least 1.4 fold the bolt diameter. In general, the weak point is not the bolt, but the component.

Conversion factors of old torque values into international SI units

1 kgfcm = 0.0981 Nm

1 in lbs = 0.112 Nm

1 Nm = 10.1931 kgfcm

1 Nm = 8.928 in lbs



Danger:

Please note that the torque settings given in chapter 17. and 17.1. take priority and override any other torque values.



Caution:

Be sure to use stainless steel bolts only for mounting mudguards and accessory parts.

18. Service Schedule

1st Service

After 400 kilometres (240 miles) or
three months from date of purchase

Order no.:

Date:

Replaced or repaired parts:

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Stamp and signature
of dealer:

2nd Service

After 2,000 kilometres (1,200 miles) or one year

Order no.:

Date:

Replaced or repaired parts:

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Stamp and signature
of dealer:

3rd Service

After 4,000 kilometres (2,500 miles) or two years

Order no.:

Date:

Replaced or repaired parts:

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Stamp and signature
of dealer:

4th Service

After 6,000 kilometres (3,500 miles) or three years

Order no.:

Date:

Replaced or repaired parts:

.....

.....

.....

.....

.....

.....

.....

.....

.....

Stamp and signature
of dealer:

5th Service

After 8,000 kilometres (5,000 miles) or four years

Order no.:

Date:

Replaced or repaired parts:

.....

.....

.....

.....

.....

.....

.....

.....

.....

Stamp and signature
of dealer:

6th Service

After 10,000 kilometres (6,000 miles) or five years

Order no.:

Date:

Replaced or repaired parts:

.....

.....

.....

.....

.....

.....

.....

.....

.....

Stamp and signature
of dealer:

Bike Card

Model:

Size:

Frame no.:

Frame size:

Permitted overall load of the STEVENS bicycle: kg

Carrier system permitted ☐ yes ☐ no

If yes - permitted load of carrier system: 25 kg

Trailer permitted ☐ yes ☐ no

If yes - permitted trailer load: kg

Child seat permitted ☐ yes ☐ no

Suspension fork manufacturer:

Model:

Serial no.:

Wheel / Tyre size:

Colour:

Extras:

Hint to the STEVENS dealer: Please copy this bike card and keep one copy in your customer file. Send another copy to Stevens Vertriebs GmbH directly after the sale of the STEVENS bicycle



Danger: Brake levers / brake lever assignment:

Right lever
Left lever

Front wheel brake
Front wheel brake

☐
☐

Rear wheel brake
Rear wheel brake

☐
☐

Stamp and signature of the STEVENS dealer

Handover Report

The above-described STEVENS bicycle was delivered to the customer ready for use, i.e. after its final assembly, inspection and functional check as described below (additionally required routines in parentheses):

Lighting	<input type="checkbox"/>	Other routines performed:.....
Brakes front and rear	<input type="checkbox"/>
Suspension fork (adjusted to suit customer)	<input type="checkbox"/>	Test ride done: <input type="checkbox"/>
Rear shock (adjusted to suit customer)	<input type="checkbox"/>	
Chain riveting checked	<input type="checkbox"/>	The customer confirms with his signature that he has received the STEVENS bicycle in proper condition together with the accompanying documents specified below and that he has been instructed on the proper use of the STEVENS bicycle.
Wheels (true running/spoke tension/air pressure)	<input type="checkbox"/>	<input type="checkbox"/> STEVENS user manual on CD-ROM incl. operating instructions of the component manufacturers
Handlebars/stem (position/bolts checked with torque wrench)	<input type="checkbox"/>	
Pedals (release force adjusted)	<input type="checkbox"/>	
Saddle/seat post (saddle height and position adjusted to suit customer)	<input type="checkbox"/>	
Gears (limit stops)	<input type="checkbox"/>	
Bolted connections of add-on parts (checked)	<input type="checkbox"/>	

Dealer name	.....	Customer name	.....
City	.....	First name	.....
Street	.....	City	.....
Phone	.....	Street	.....
Fax	.....	Phone	.....
E-mail	.....	Fax	.....
		E-mail	.....

Handover date, stamp, signature

Location, date, signature

STEVENSBIKES.DE



YOUR STEVENS DEALER